EXECUTIVE SUMMARY

APRIL 2021

XYZ COMPANY

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INTRODUCTION

Company XYZ owns a supermarket chain across the country. Each major branch located in three cities across the country recorded sales information for 3 months, to help the company understand sales trends and determine its growth, as the rise of supermarkets competition is seen.

This report contains findings, processes and actionable insights from the analysis of the three major branches through data manipulation using Python library (Pandas) and chart visualizations using Python libraries (Seaborn and Matplotlib) to present the findings in graphs.

Conclusively, some solution approaches were derived from insights gotten from the data. These approaches should be adopted by the company so as to maximize customers' satisfaction and increase in product sales in all the branches of the supermarket.

PROCESSES

Data Overview

First-party data was collected from the recorded sales information of the three branches for the months of January to March. This data was instrumental in arriving to the insights presented in this report.
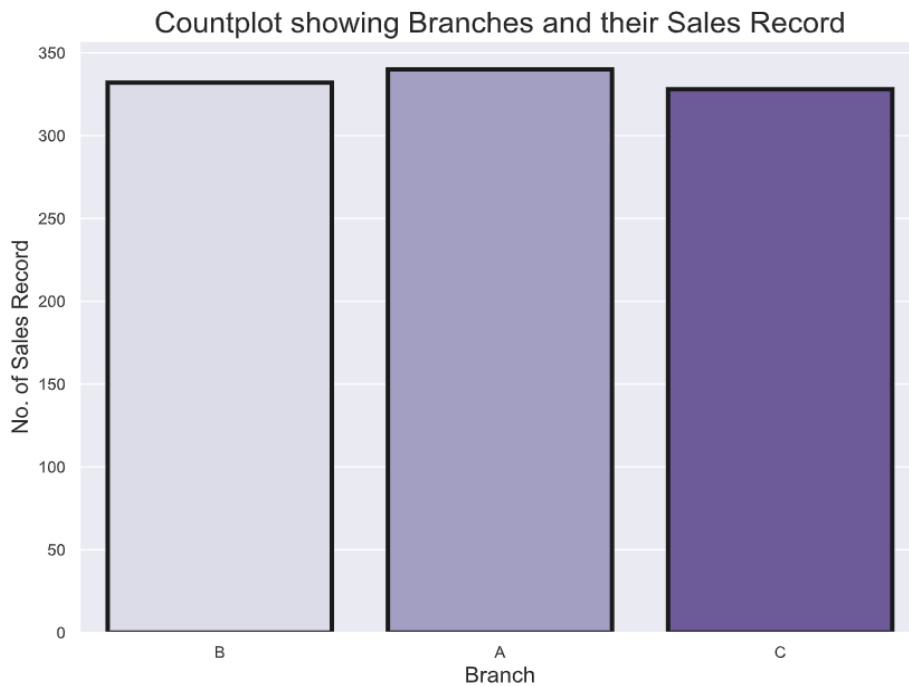
Methods

Exploratory analysis of the data was carried out using Python libraries (pandas) to clean and explore the data. The findings were communicated and presented using chart visualizations from Python visualization libraries (Seaborn and Matplotlib). The charts were generated as:

- ❖ Bar plot
- ❖ Count plot
- ❖ Box plot
- ❖ Point plot

Data Analysis

Descriptive analysis: This was done to identify what has already happened in the company. From this analysis, the following were determined:
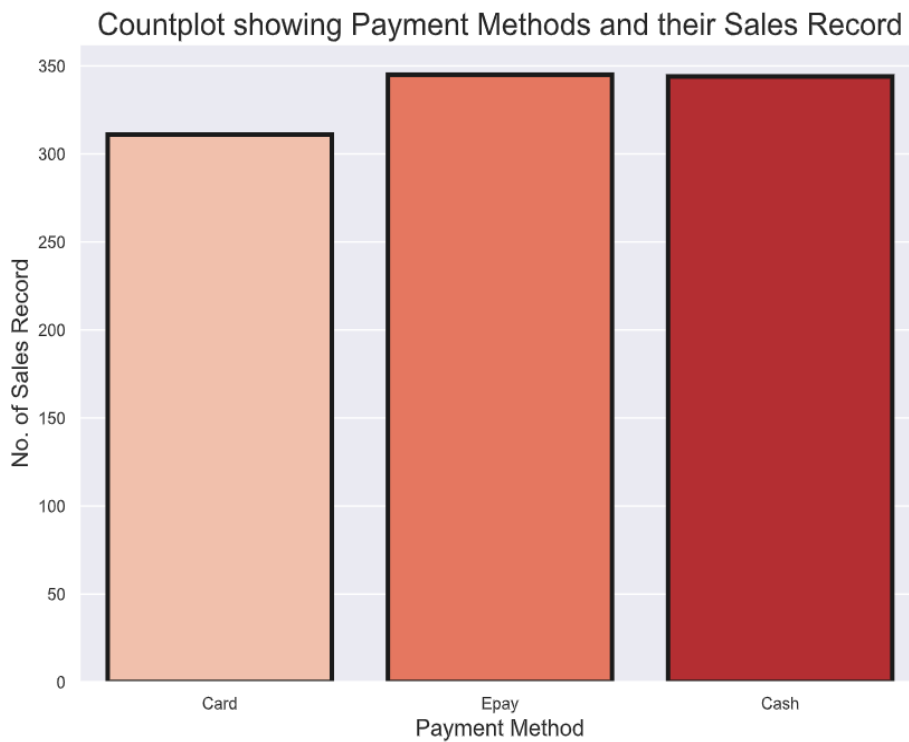
❖ The branch with the highest sales record

Countplot showing Branches and their Sales Record

(Chart: y-axis "No. of Sales Record" from 0 to 350; x-axis "Branch" with categories B, A, C)

❖ The most used payment method

Countplot showing Payment Methods and their Sales Record

(Chart: y-axis "No. of Sales Record" from 0 to 350; x-axis "Payment Method" with categories Card, Epay, Cash)

❖ The city with highest sales records

Countplot showing Cities and their Sales Record

❖ The highest and lowest sold product lines

Countplot showing Product Lines and their Sales Record
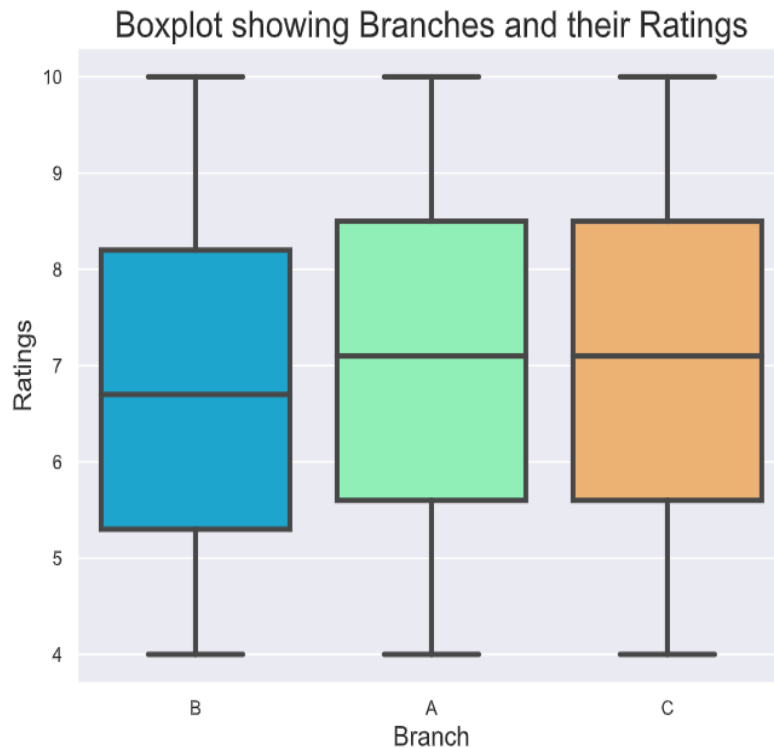
❖ The payment channels for each branch

Countplot showing Payment Channels for Each Branch
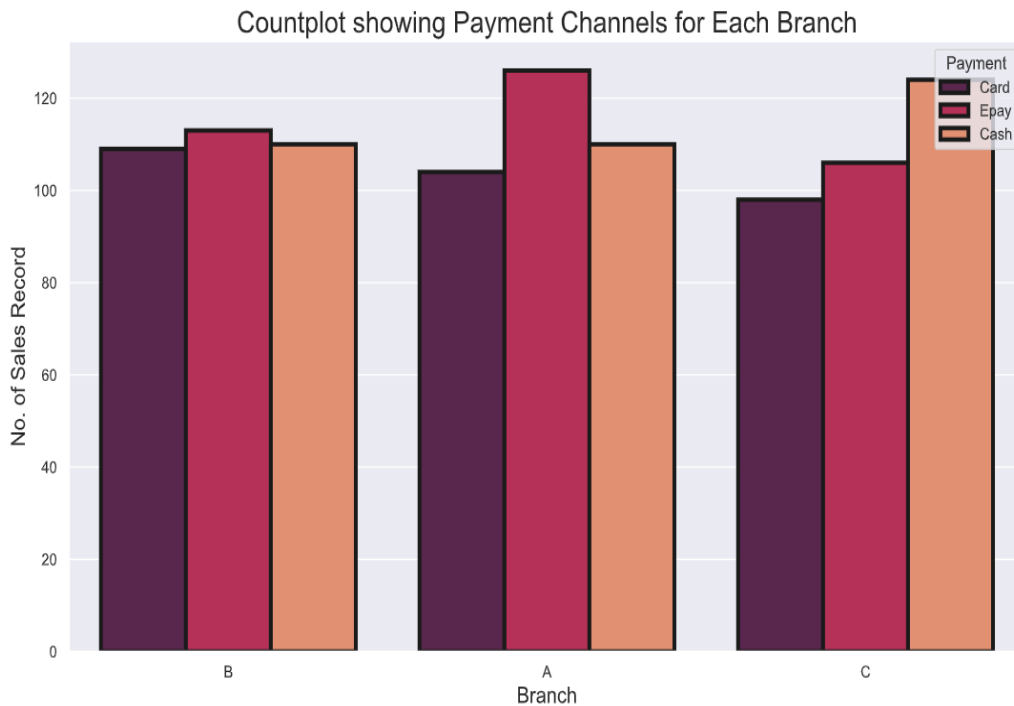
INSIGHT

The most used Payment Method used in Branch A and B is Epay while the most used Payment method used in Branch C is Cash
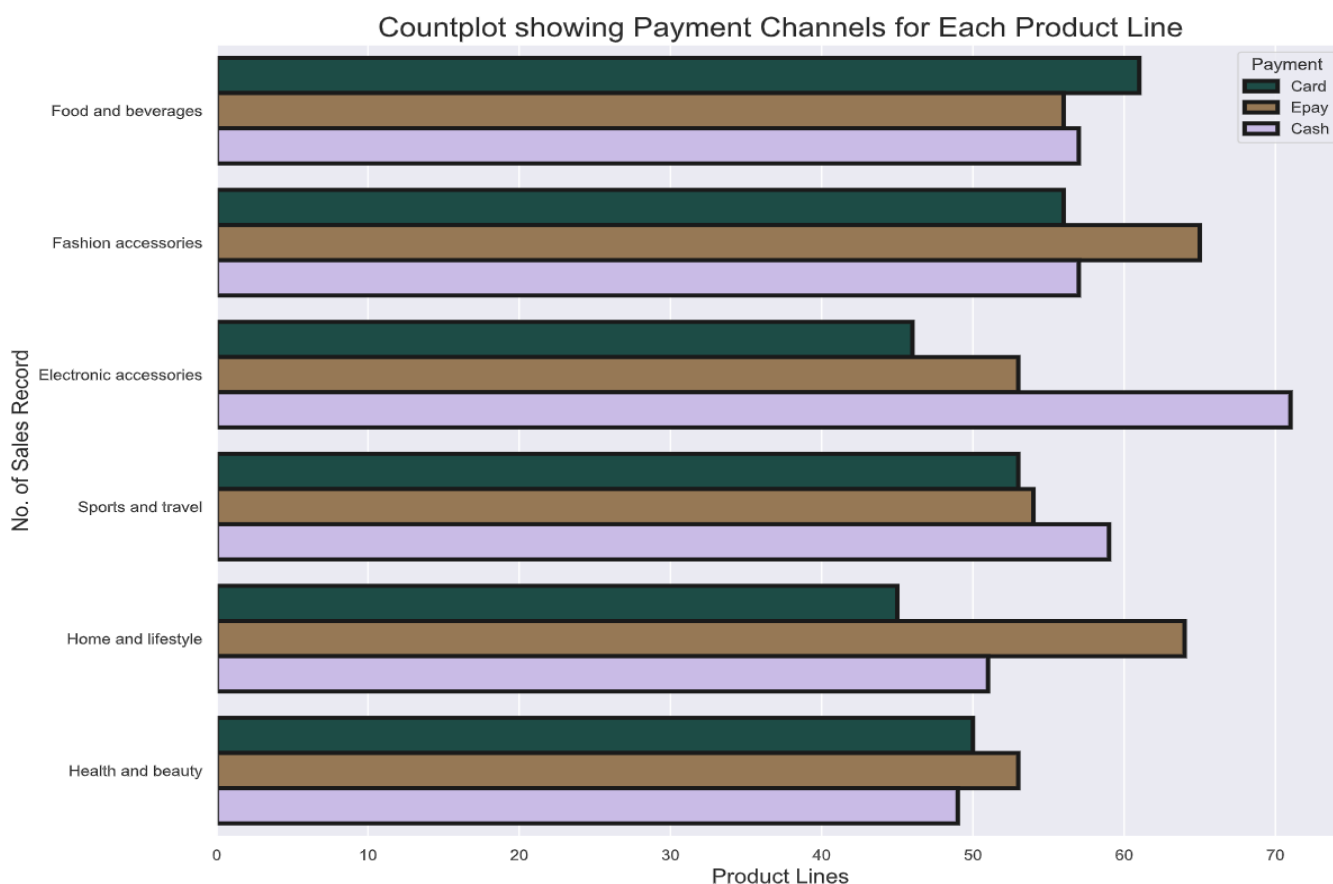
❖ The branch with the lowest rating

Boxplot showing Branches and their Ratings

INSIGHT

Branch A and B both have the highest ratings while Branch C has the lowest rating.

❖ The payment channels for each branch


Countplot showing Payment Channels for Each Product Line

INSIGHT

Epay is the most used payment method used in Fashion accessories, Home and lifestyle and Health and beauty product line.

Cash is the most used payment method in Sports and travel product line while Card is the most used payment method in Food and beverages product line

Diagnostic analysis: This was done to understand why some things happened in the company. From this analysis, the following were determined:

❖ **What is the relationship between "quantity" and "unit price"?**

Plot showing Product Line per Unit Price

Plot showing Product Line per Quantity
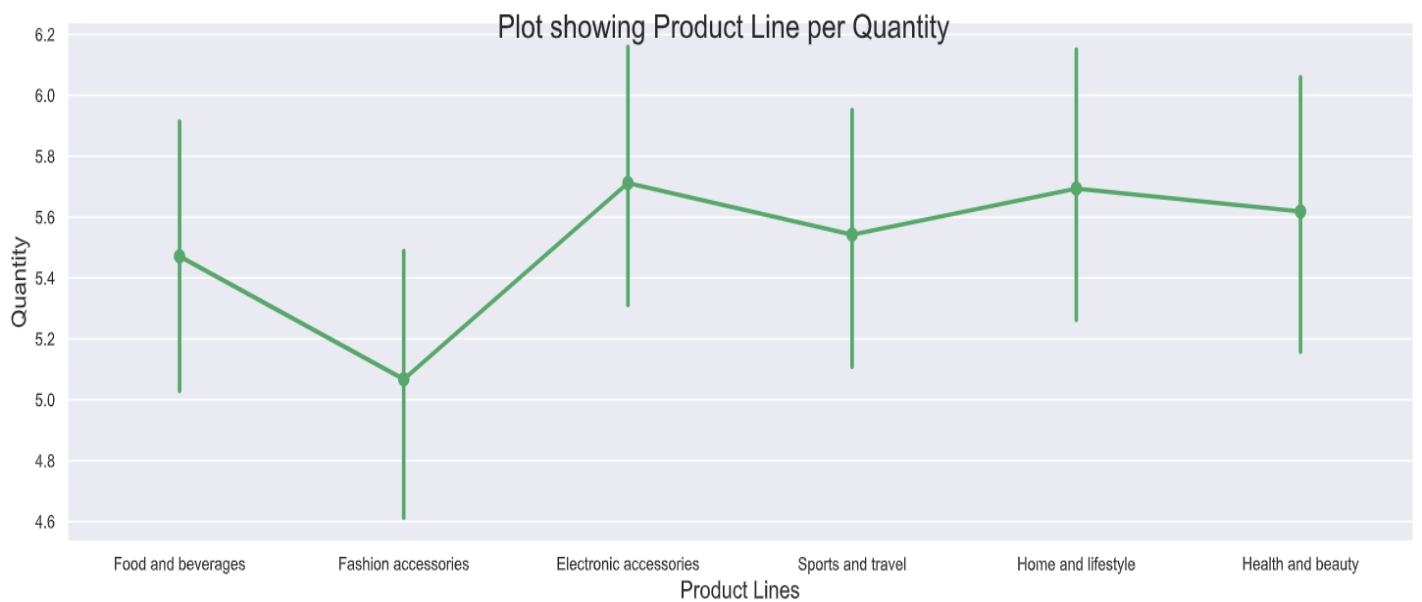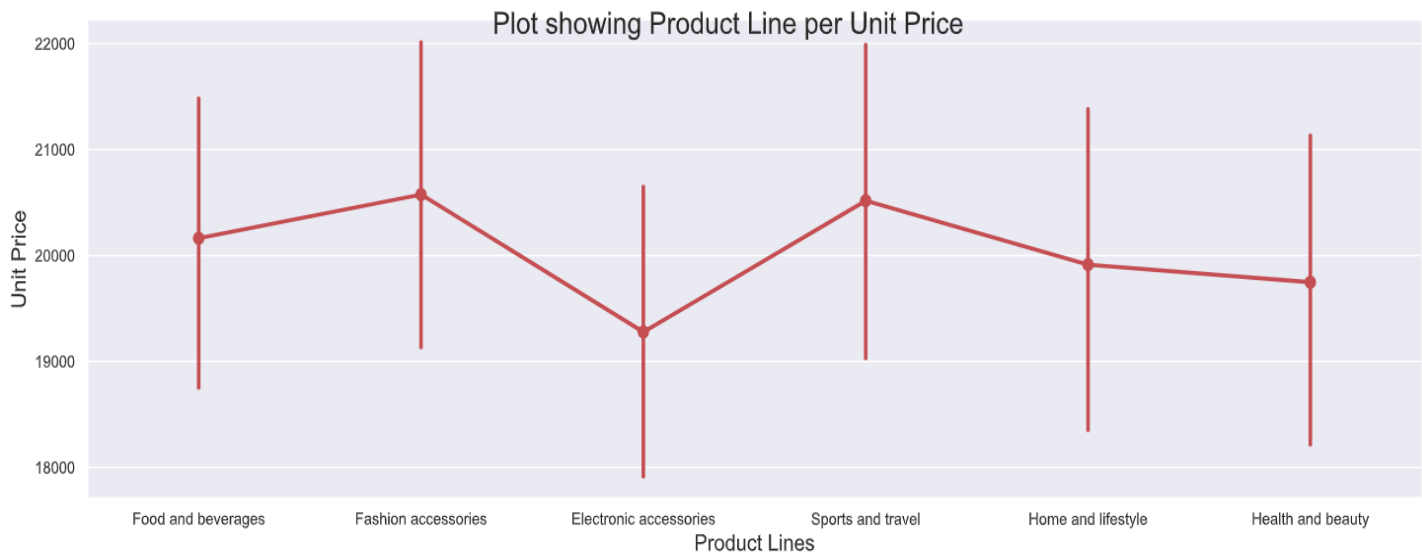
INSIGHT

It is observed that the lower the unit price, the more quantity sold and the higher the unit price, the lesser the quantity sold

❖ **Does gender affect the kind of products being purchased of the s**

Plot showing Quantity pf Products Purchased by Gender

Plot showing Total Price of Products by Gender

INSIGHT

The Female gender buys more quantities of products from most of the product lines and has a higher value of total price of goods than the Male gender.
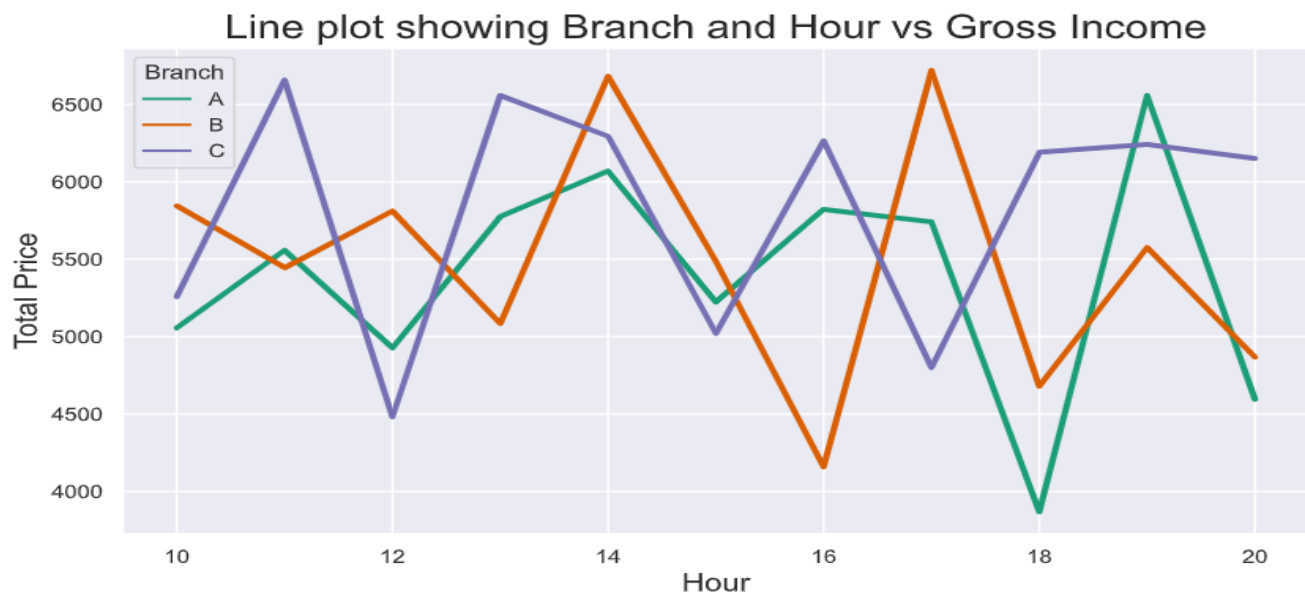
❖ **Does customer type affect the gross income of the supermarket?**

Barplots showing the Customer type vs Gross Income, Total Price and Quantity
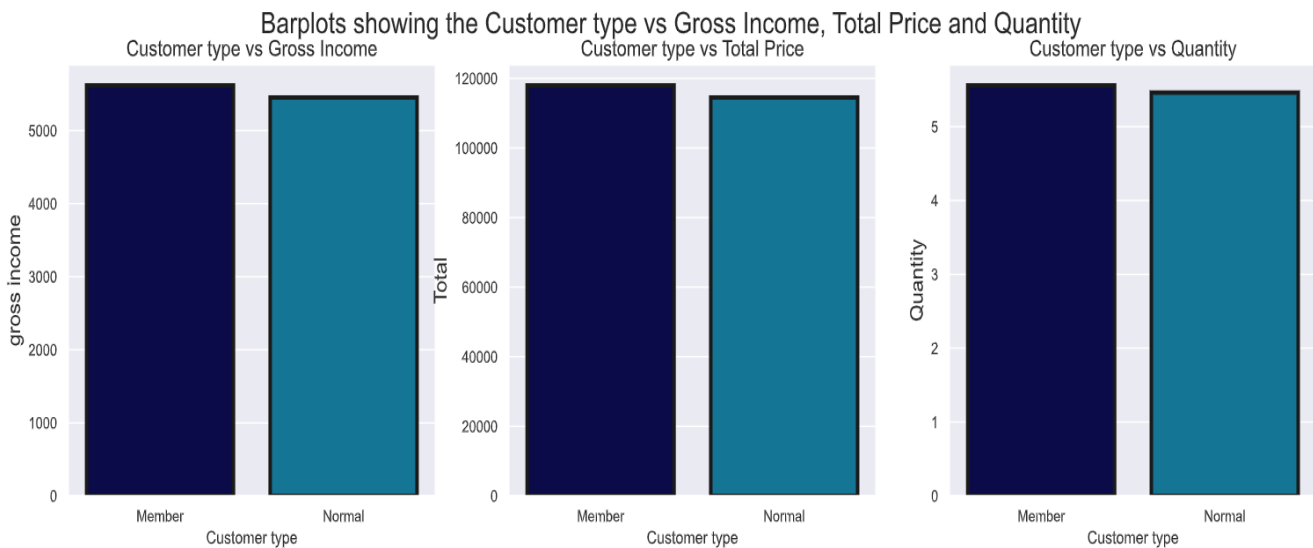
INSIGHT

Therefore, it can be said that Member customers contribute to the resulting increase in the overall gross income.

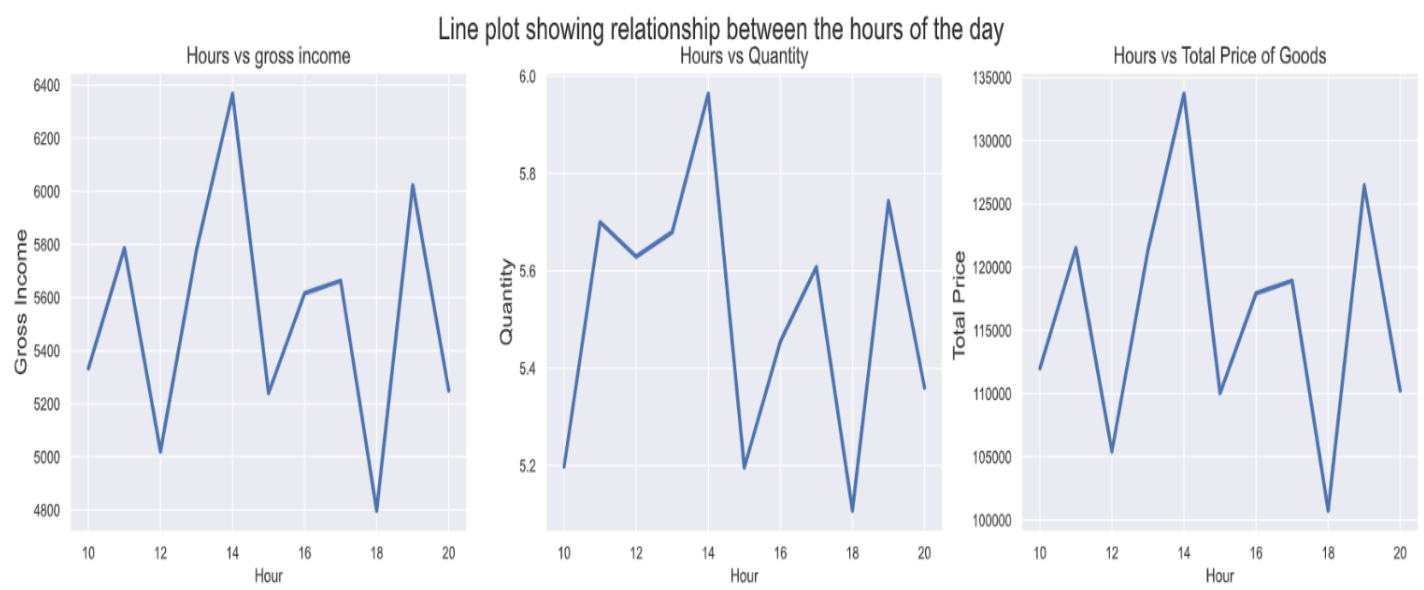❖ **Does the time of day, especially the hour affect the amount of sales in each branch?**

Line plot showing Branch and Hour vs Gross Income

❖ **What time of day did the supermarket record its highest?**

Line plot showing relationship between the hours of the day

INSIGHT

Therefore, it can be seen that at the 19th hour (7.00PM), Branch A makes more sales, then, at the 14th hour (2.00PM) and 17th hour (5.00PM), Branch B makes more sales while at the 11th hour(11.00AM), Branch C makes more sales. All these sales led to an increase in the overall gross income of the supermarket.
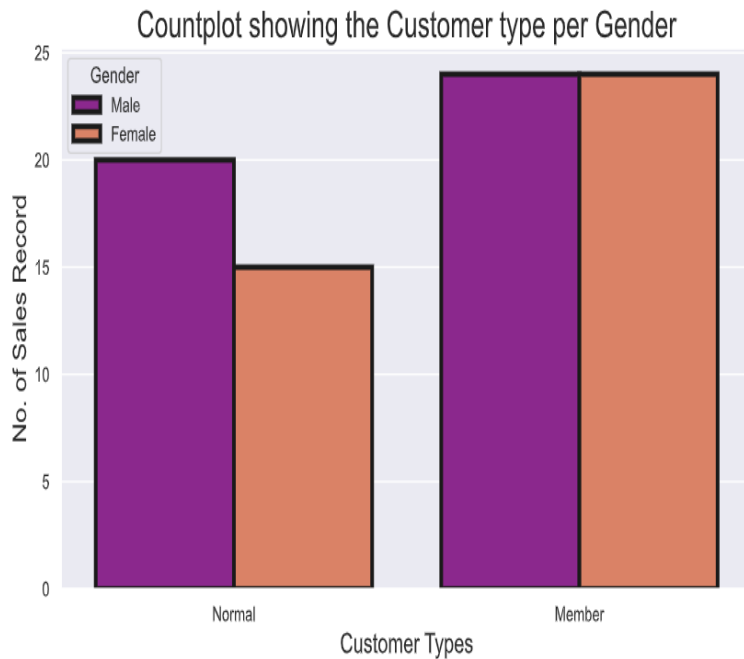
❖ **What gender and customer type visited the supermarket during the 14ᵗʰ hour?**

Countplot showing the Customer type per Gender

INSIGHT

More Members visited the supermarket than Normal
customers.
The Male Gender visited the supermarket more than the Female Gender.

❖ **Does the gender contribute to high sales at the 14ᵗʰ hour?**

Barplots showing Gender vs Gross Income and Total Price
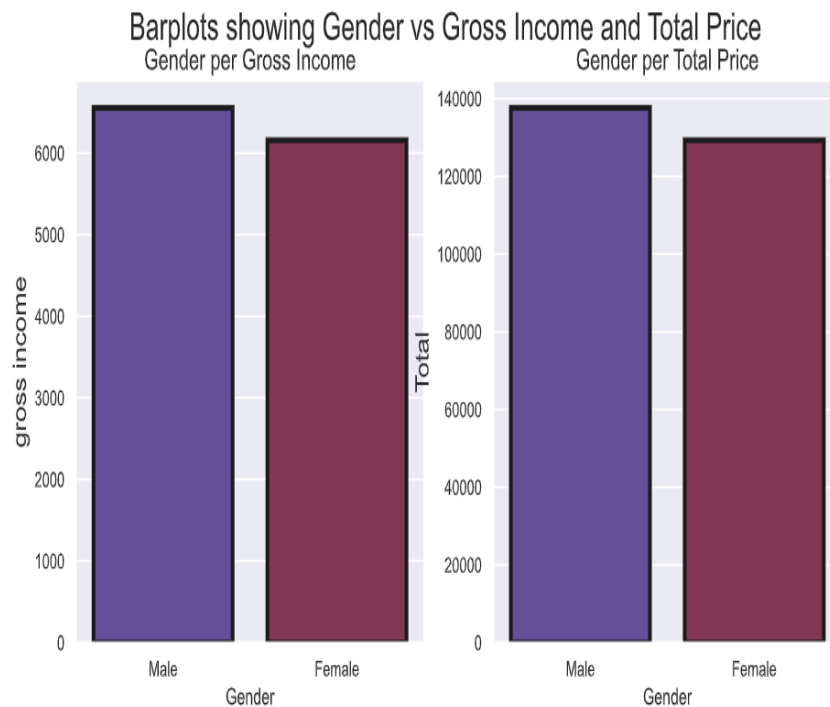
INSIGHT

At the 14th hour (2.00PM), the Male Gender spend more on their purchases which results to a higher total price of good purchased which leads to an increase in the gross income of the Male Gender, thereby resulting to a corresponding increase in the overall gross income.

❖ What month recorded the highest sales?

Barplots showing Branch and Month vs Total Price, Gross Income and Quantity
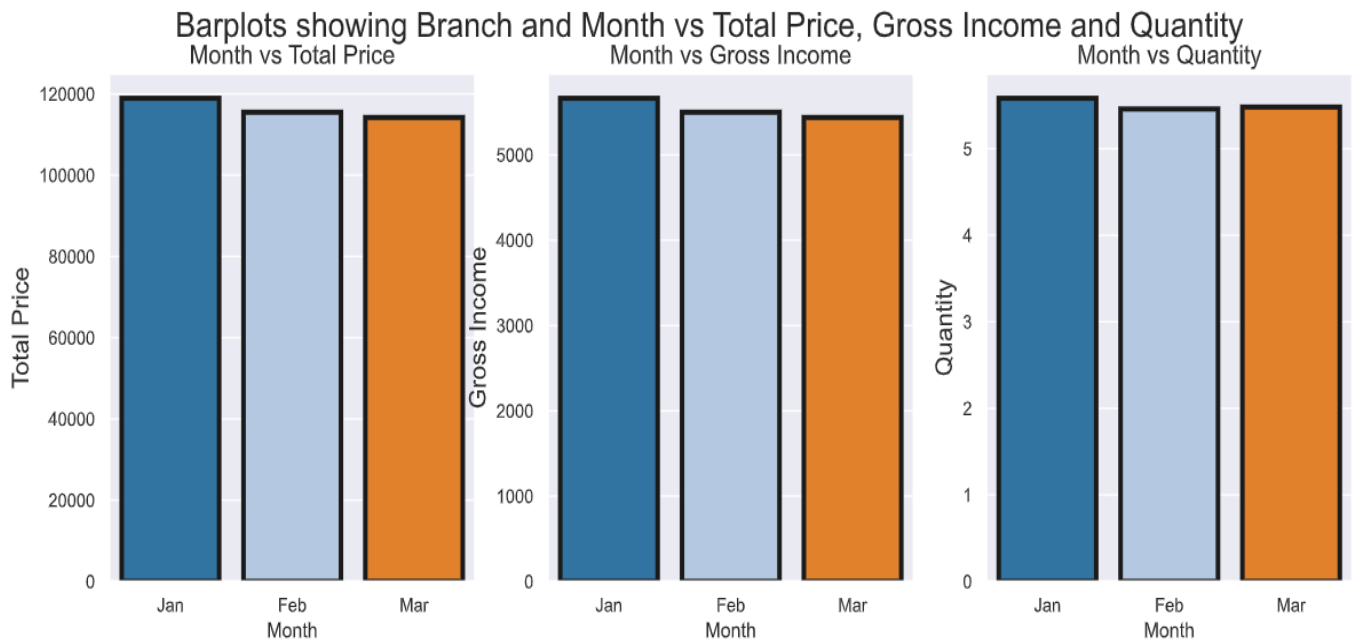
INSIGHT

In the month of January, more quantities of products were purchased, leading to a higher total price in the amount of goods bought, thereby resulting to a much higher gross income when compared to other months.

## ❖ What month did the cities record their highest sales?

Barplots showing City and Month vs Total Price, Gross Income and Quantity
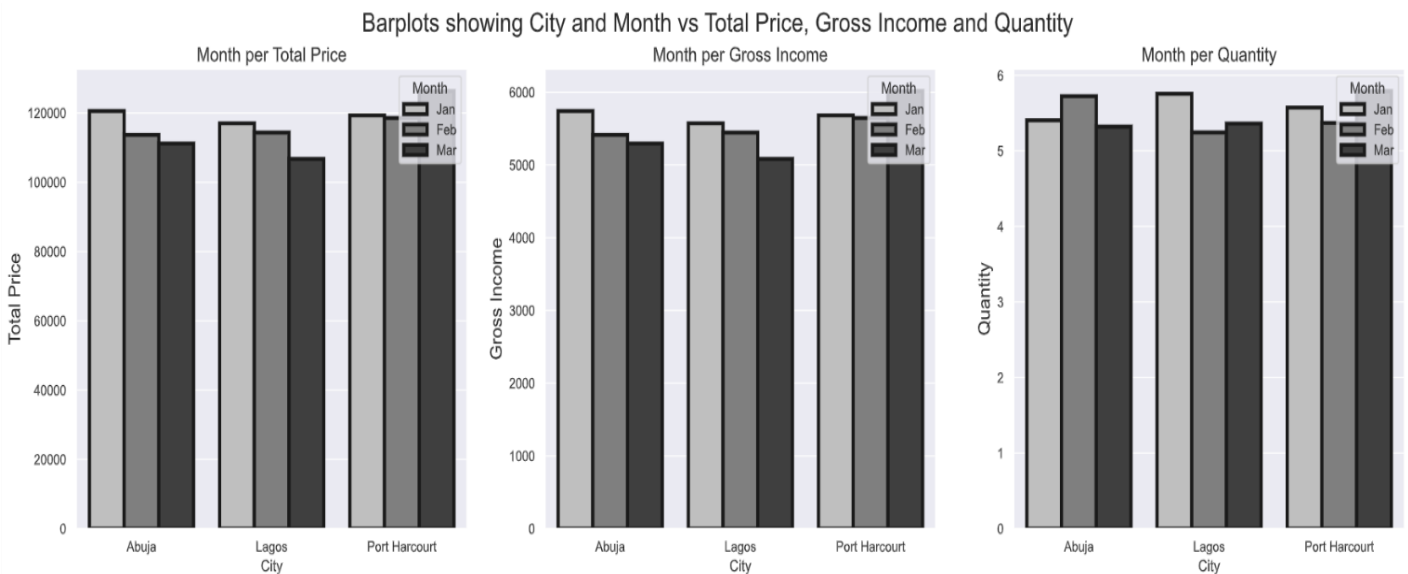
1. In the month of January, Abuja had its highest total price of goods purchased by the customers, leading to Abuja having a higher increase in gross income compared to other months, even though more quantities of products were purchased in other months while in the month of February, Abuja had its least sale record.

2. In the month of January, Lagos had its highest total price of goods purchased by the customers, leading a higher increase in gross income compared to other months, even though more quantities of products are purchased in the other months while in the month of February, Lagos had its least sale record.

3. In the month of March, Port Harcourt had its largest quantities of products purchased and the highest total price of goods purchased by the customers, leading to a higher increase in gross income compared to other months while in the month of January, Port Harcourt had its least sale record.

❖ **What products did customers spend more on during the past months?**

Barplots showing Month and Product line vs Total Price and Gross Income
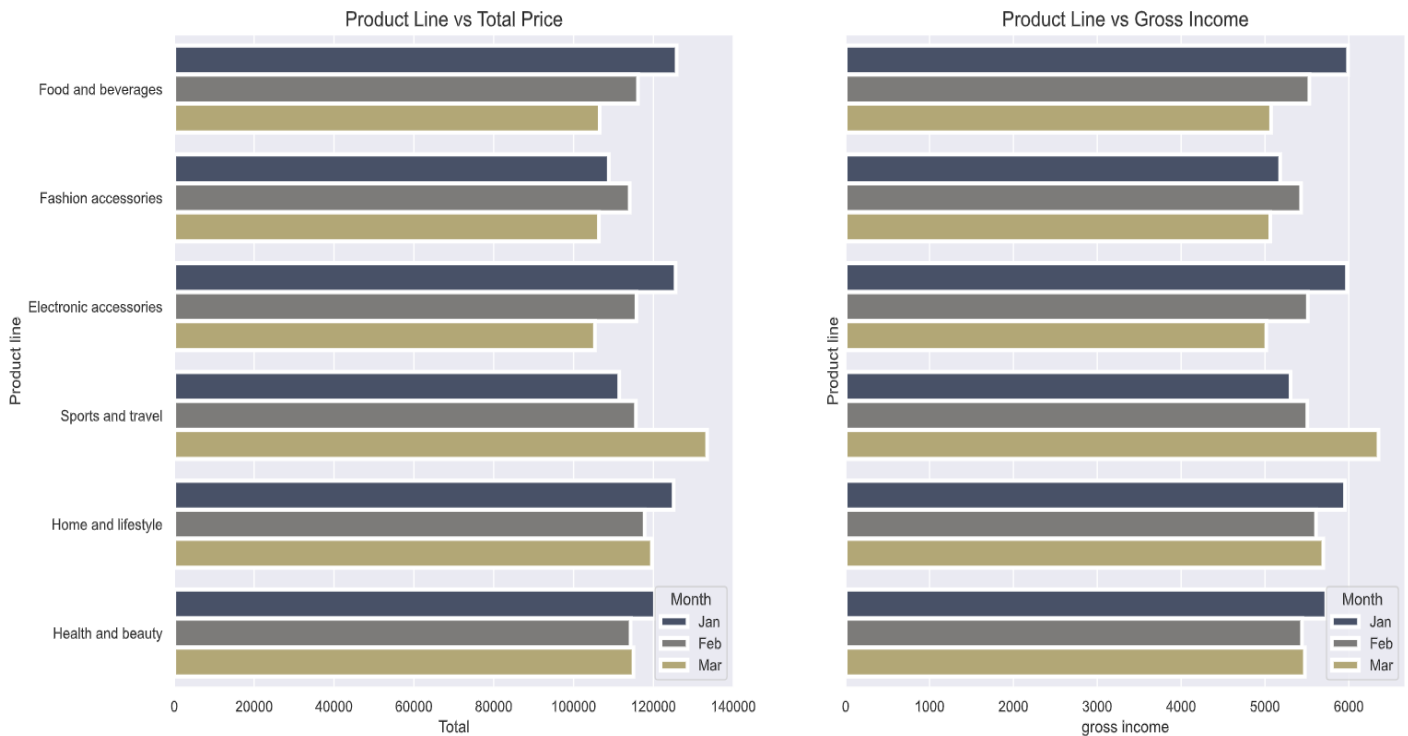
Therefore, this shows that in the month of JANUARY, customers spent more on products from Food and beverages, Electronic accessories, Home and lifestyle and Health and beauty. In the month of FEBRUARY, customers spent more on products from Fashion accessories while in the month of MARCH, customers spent more on products from Sports and travel.

❖ **What products did the customers purchase more in the branches during the months?**

Product line vs Total Price for Each Branch During the Months

Product line vs Quantity for Each Branch During the Months

Product line vs Gross Income for Each Branch During the Months
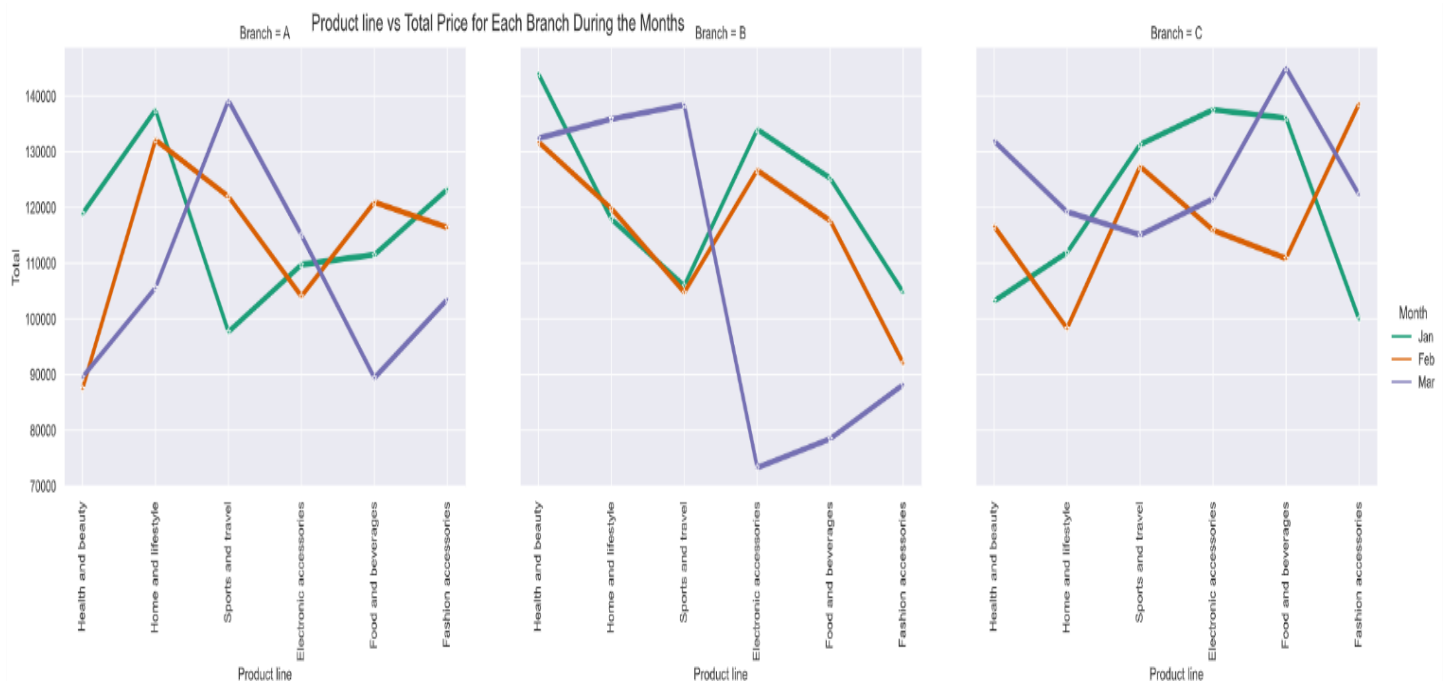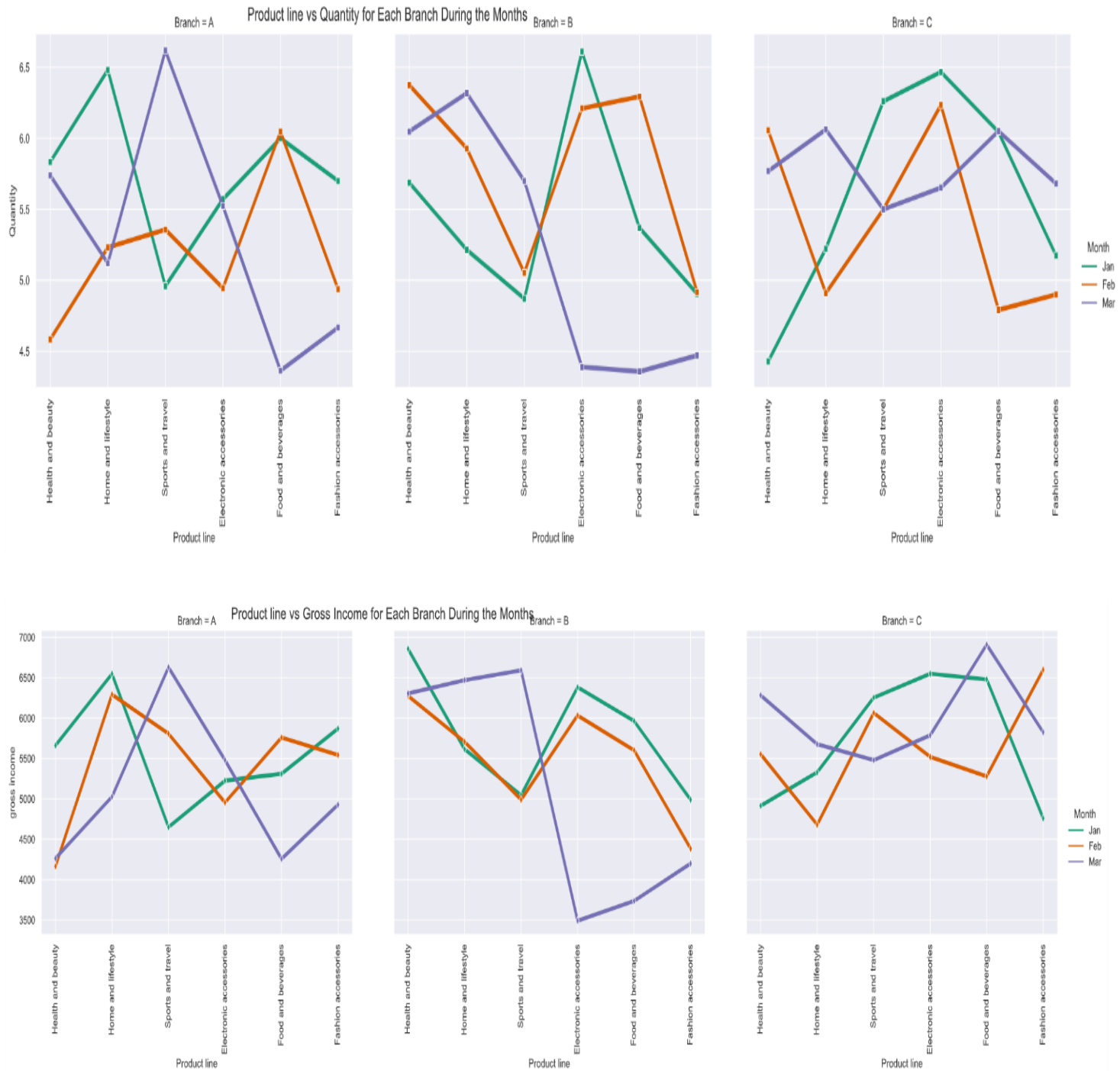
INSIGHT

It should be noted that in the month of February, all the product lines except Food and beverages and Sports and travel lines experienced a decrease in the quantities of goods purchased and also in their gross income compared to the previous month(January). Then in the month of March, all the product lines except the Electronic accessories, Health and beauty and Sports and travel product lines experienced a further decrease in the quantities of goods purchased and also in their gross income compared to the previous month(February).

It should be noted that in the month of February, all the product lines except Home and lifestyle experienced a decrease in the quantities of goods purchased and also in their gross income compared to the previous month(January). Then in the month of March, all the product linces except the Sports and travel, Home and lifestyle and Health and beauty lines experienced a further decrease in the quantities of goods purchased and also in their gross income compared to the previous month(February)

 It should be noted that in the month of February, all the product lines except Fashion accessories and Health and beauty experienced a decrease in the quantities of goods purchased and also in their gross income compared to the previous month(January).
Then in the month of March, all the product linces except the Fashion accessories and Sports and travel lines experienced an increase in the quantities of goods purchased and also in their gross income compared to the previous month(February).

## ❖ Does the gender, customer type and product line affect rating?

Boxplot showing Gender and Customer type per Ratings
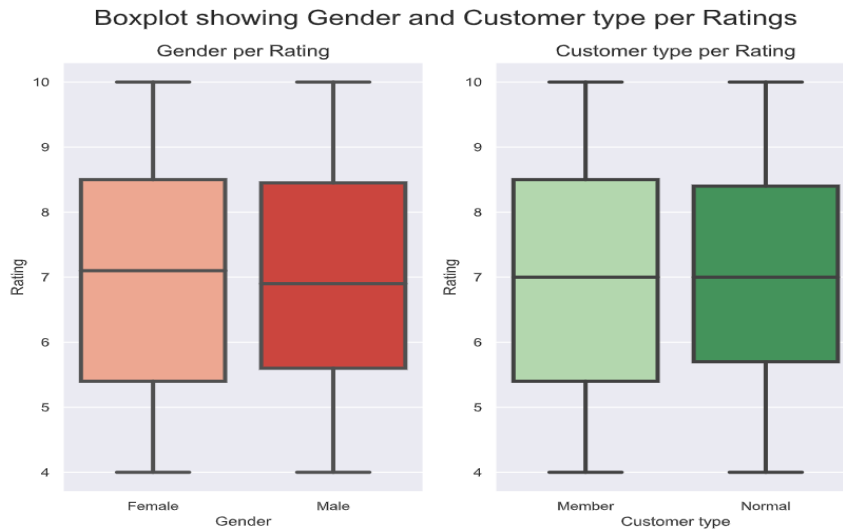
INSIGHT

The genders gave high ratings but the Male gender gave much higher ratings.
The two customer types gave high ratings but the Normal customers gave much higher ratings.

❖ What product line has the least ratings?

Boxplot showing Product Lines and their Ratings
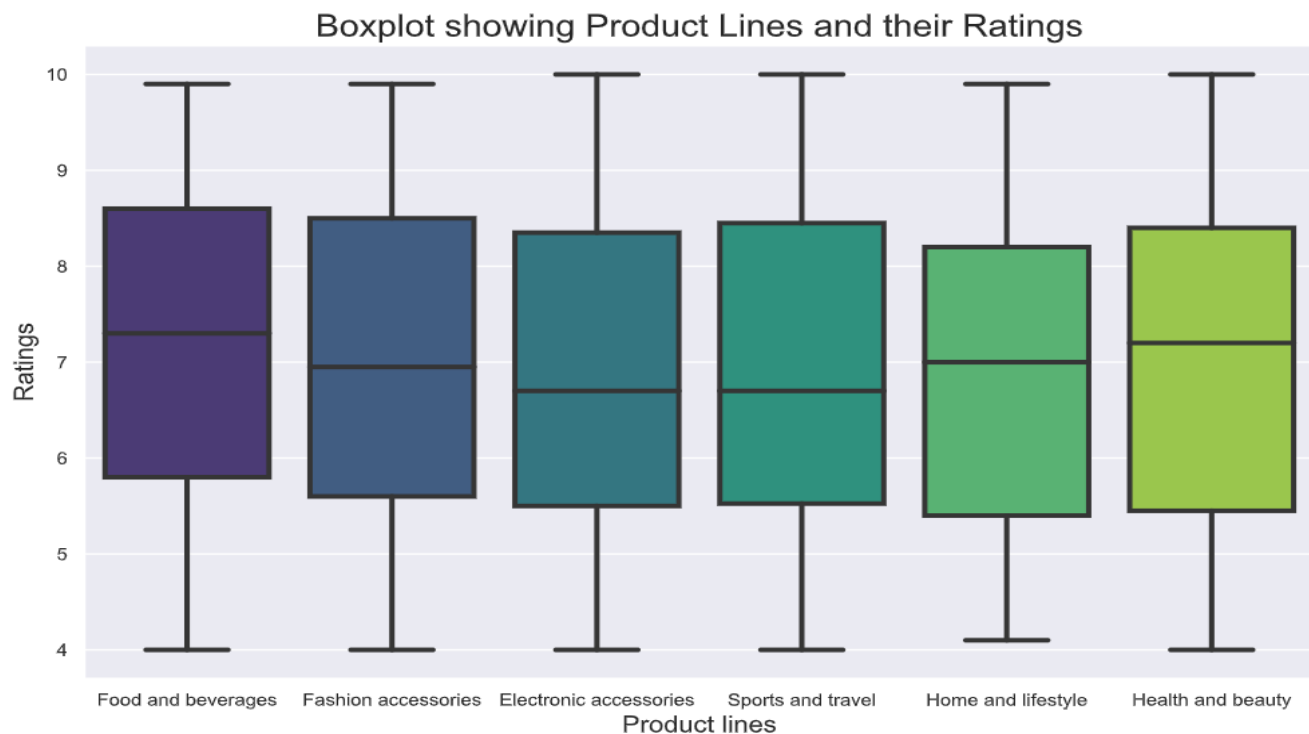
INSIGHT

Therefore, Electronic accessories, Sports and travel and Health and beauty product lines received much higher ratings than products from the Food and beverages, Fashion accessories and Home and lifestyle product lines.

RESULTS

The following insights and observations were deduced from the analysis:

❖ The lower the unit price, the more quantity sold and the higher the unit price, the lesser the quantity sold

❖ Members purchase more goods from the supermarket than Normal customers.

❖ At the 14th hour (2.00PM), more quantities of products were sold, more purchases were made, therefore leading to a corresponding increase in the overall gross income.

❖ The Male gender gives high ratings than the female ratings, which means the male gender is more satisfied with the services of the supermarket

❖ In the month of January, Abuja and Lagos had their highest total price of goods purchased by the customers, leading to Abuja and Lagos having a higher increase in gross income compared to other months.

❖ In the month of March, Port Harcourt had its largest quantities of products purchased and the highest total price of goods purchased by the customers, leading to a higher increase in gross income compared to other months.

❖ Food and beverages, Fashion accessories and Home and lifestyle product lines received lower ratings than the other product lines.

CONCLUSION

The company should take the following approaches to increase sales and company's growth:

- ❖ Customer surveys and suggestion box system should be implemented in all the branches so as to get suggestions on how to satisfy them better.
- ❖ An inviting membership subscription plan should be implemented to attract new customers, turn normal customers to members and keep returning customers as members.
- ❖ Product lines with low gross income should have exciting offers attached to them. Offers such as coupons, discounts and promos will attract customers to purchase such items.
- ❖ In conclusion, Since the most used payment platform used by customers is Epay, XYZ Company should create an online presence for all the branches where customers can order for products online, this is sure to increase sales for the company.