

# Python for Business Analysis

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# Suggestions to improve this year's performance

Data Source consists of a database  
with these notable tables...

- Order Data
- Shipping Data

# Data Preparation



Query for the average sales and profit by each month over course of 3 years



Find what areas of shipping and handling needs improvement



How the trends of discounts rate relates to the overall sales and profit

# Potential Causes for Sales Fluctuations

## 1. External Economic Factors:

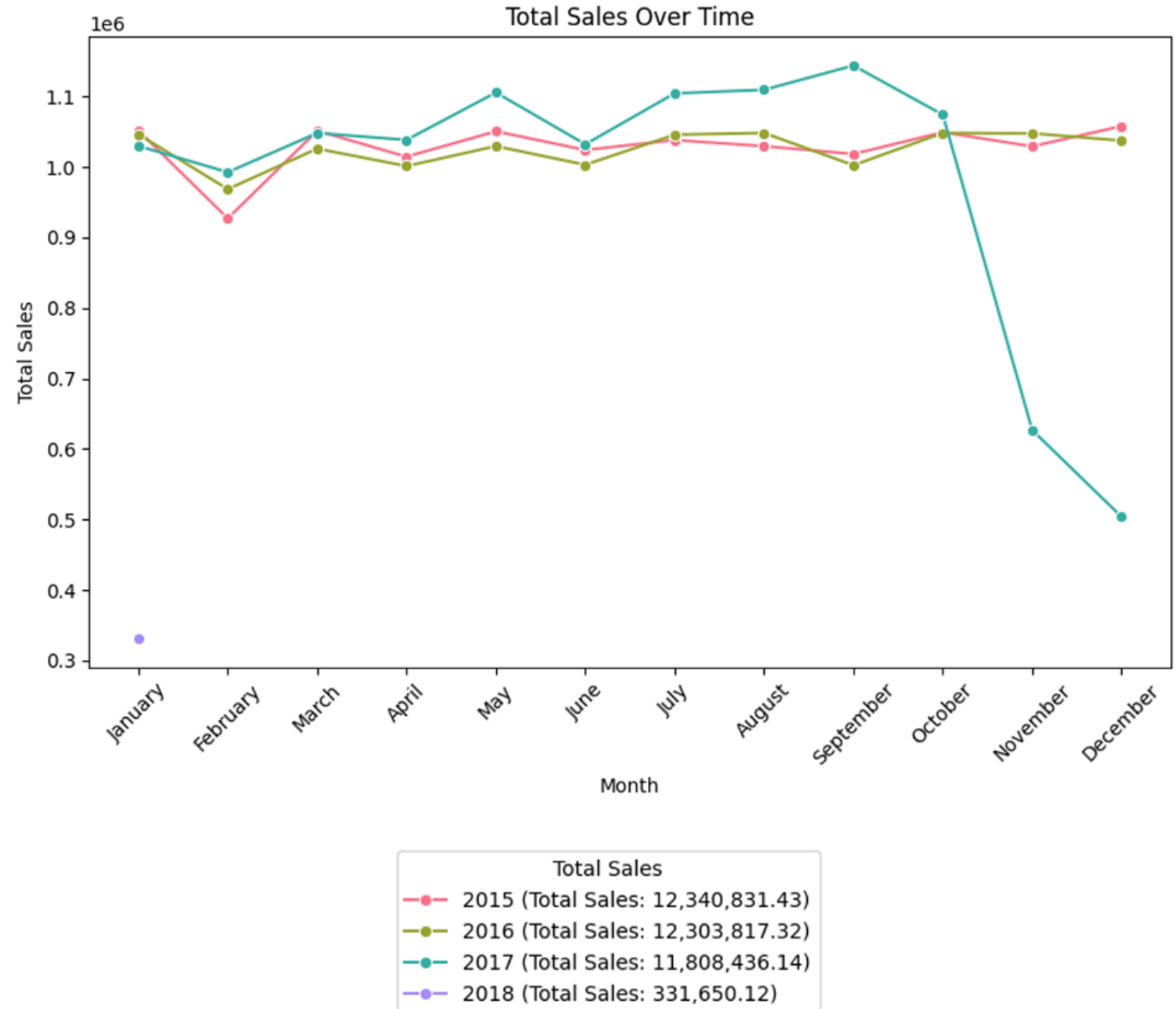
- Economic Fluctuations: Sales can vary with economic downturns, changes in consumer spending, or market saturation.
- Seasonal Trends: Sales can be influenced by holidays, weather, or major events.

## 2. Internal Business Decisions:

- Marketing and Product Changes: Adjustments in marketing, product lines, or pricing can impact sales. (Product Quality)
- Inventory Management: Stockouts or overstocking can disrupt sales.

## 3. Competitor Actions:

- Increased Competition: New or aggressive competitors can affect sales.
- Competitor Innovations: Superior products from competitors can draw customers away.



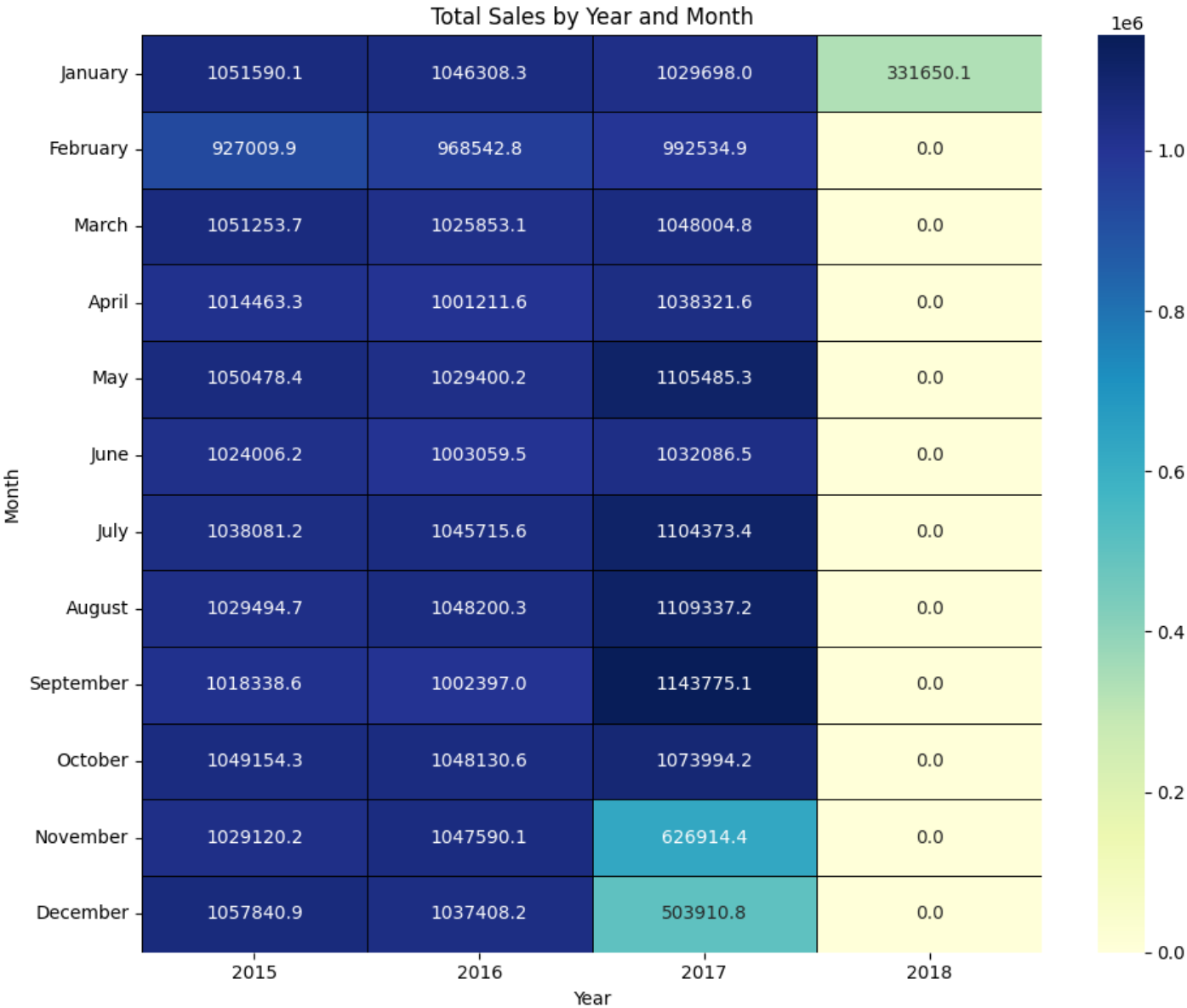
# Potential Causes for Sales Fluctuations

## 4. Customer Preferences and Behavior:

- Changing Preferences: Shifts in trends or demographics can influence sales. (Healthy eating can increase sales of organic and natural foods or aging population might lead to higher sales of healthcare products)
- Customer Satisfaction: Negative experiences or reviews can lead to sales declines.

## 5. Operational Factors

- Logistics Issues: Supply chain problems or inefficiencies can impact product availability and delivery, affecting sales. (Delayed Deliveries or Quality Issues)
- Business Changes: Mergers, acquisitions, or management changes can cause temporary disruptions in sales.



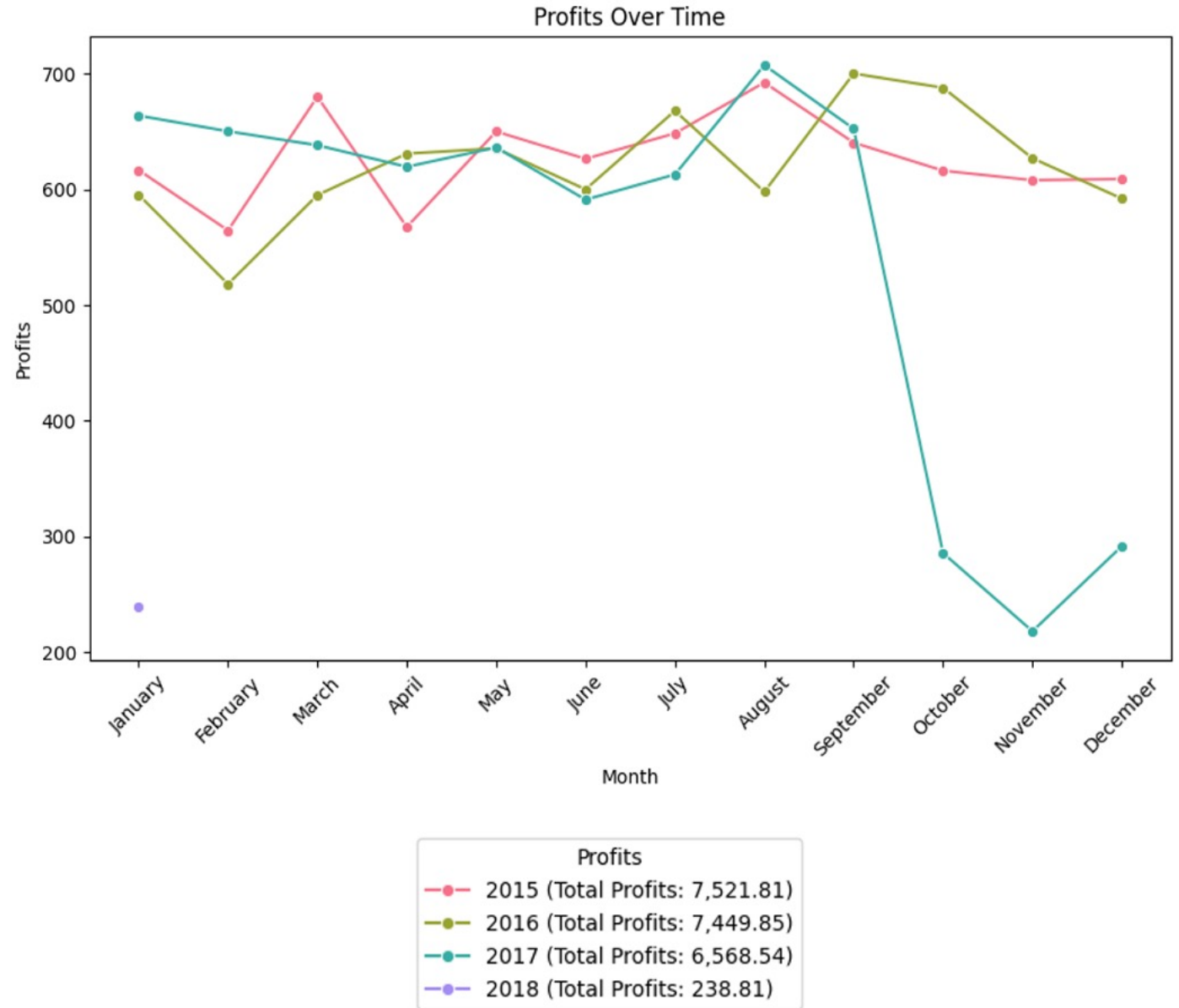
# Action Plan for Profit

## 1. Analyze Monthly Trends and Address Seasonal Variations:

- Address the sales decline in January 2018 through targeted promotions or new product launches.
- Focus on enhancing marketing efforts and promotional activities during the 2nd and 3rd quarters, which consistently show higher sales.
- Recognize seasonal patterns in consumer demand, with retail sales typically peaking in spring and summer (2nd and 3rd quarters) due to holidays and increased outdoor activities.
- Acknowledge the influence of warmer weather in the 2nd and 3rd quarters, which encourages higher spending on outdoor activities, vacations, and home improvements.

## 2. Optimize Product and Service Offerings:

- Boost sales of top-performing products through strong marketing and availability.
- Improve or replace underperforming products to maintain profitability.





# Action Plan for Profit

## 3. Shipping Mode Efficiency:

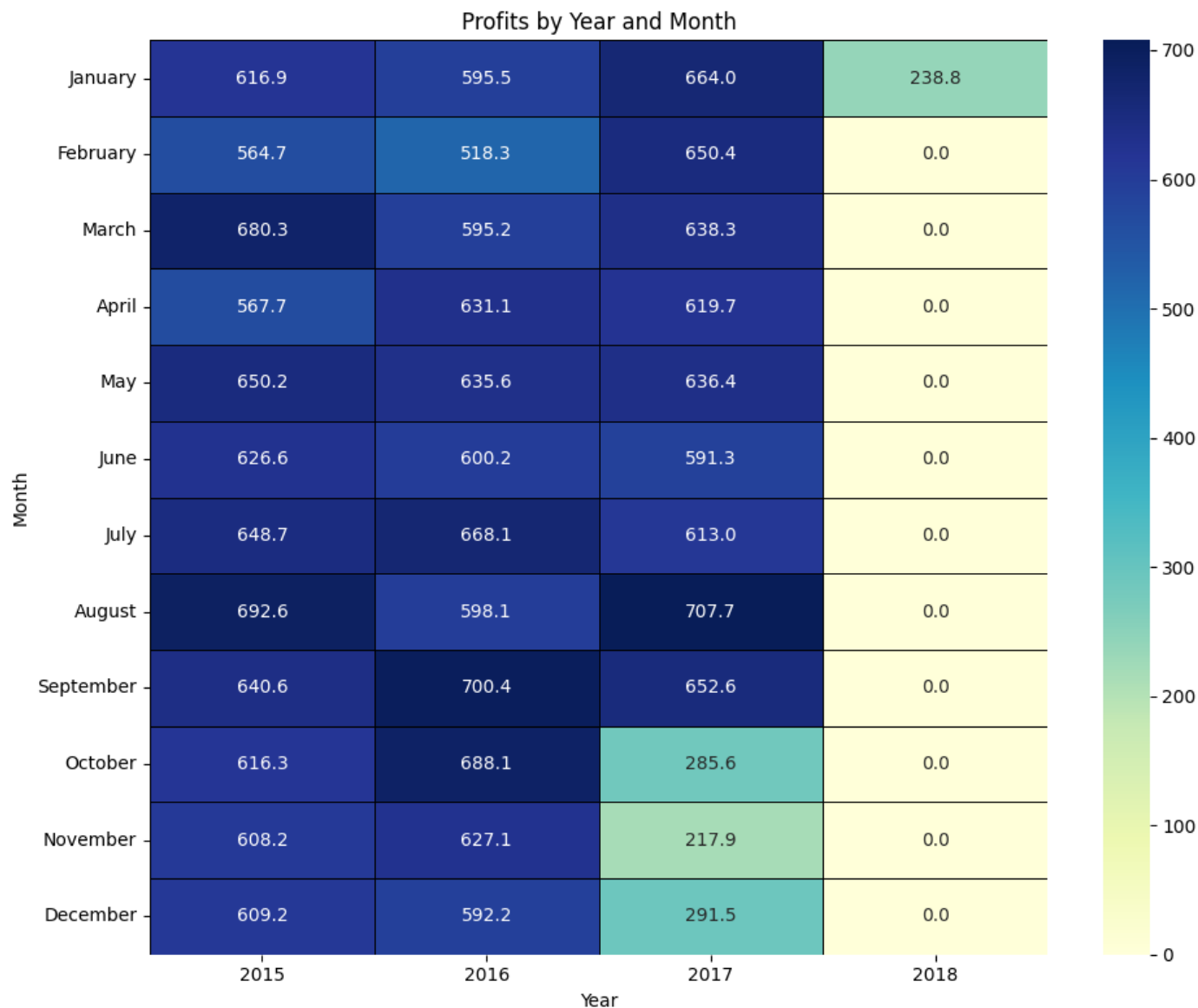
- Promote Standard Class shipping with incentives like free shipping for larger orders, as it generates the most sales.
- Enhance Same Day and First-Class shipping for urgent orders or premium customers, highlighting benefits and offering possible discounts to boost usage.

## 4. Customer Retention and Acquisition:

- Implement or improve loyalty programs to retain customers and drive repeat purchases.
- Gather and analyze customer feedback to identify opportunities for product, service, and overall customer experience enhancements.

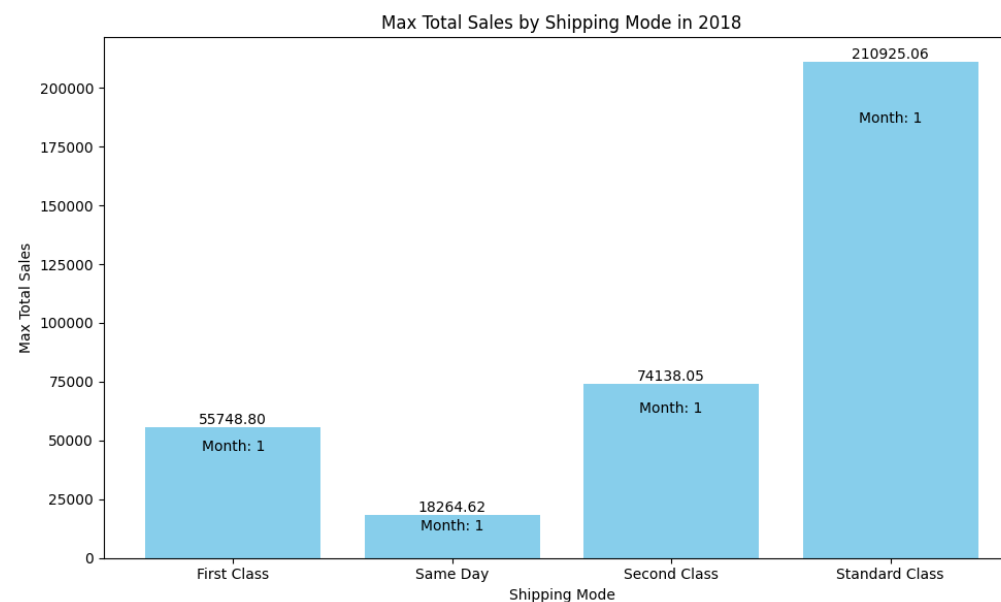
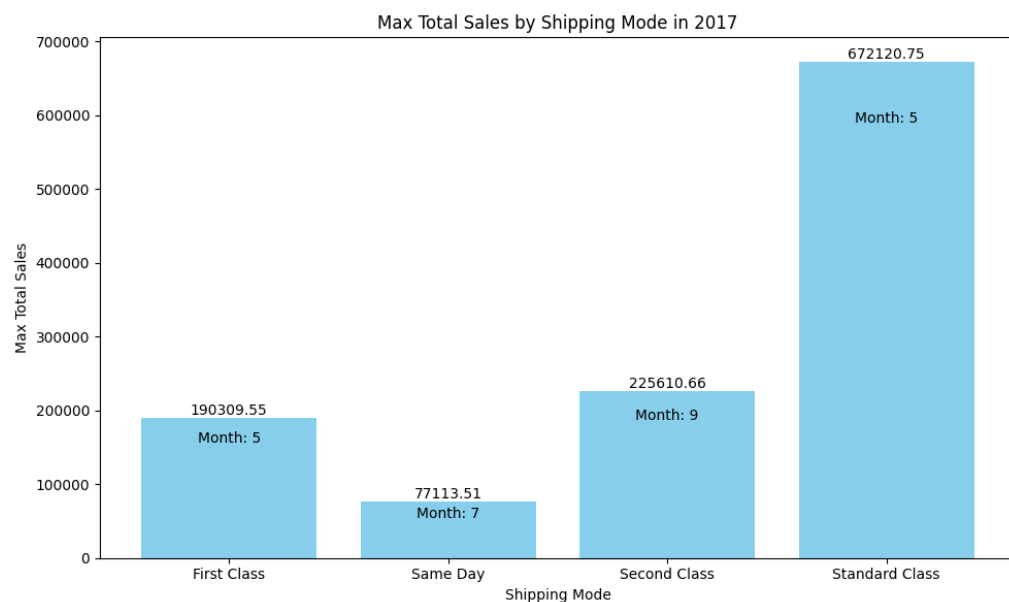
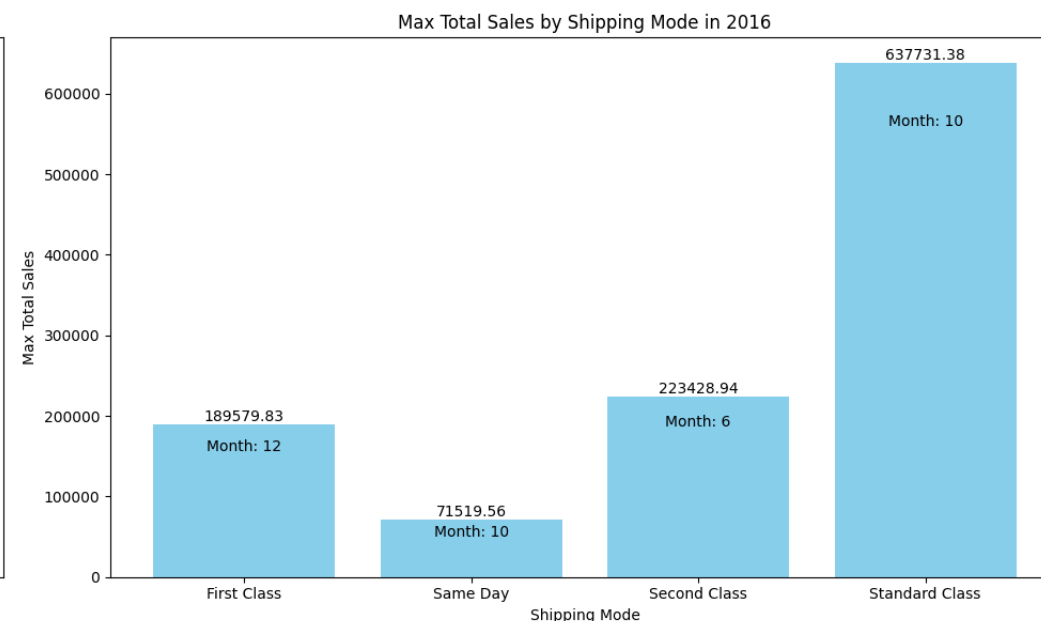
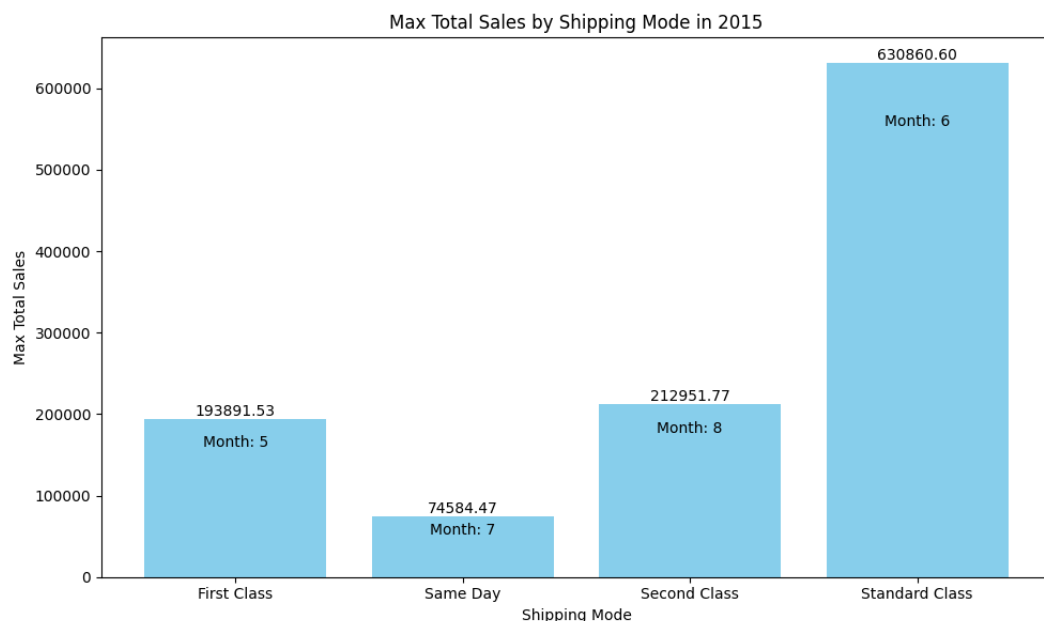
## 5. Marketing and Promotions:

- Utilize data analytics to target marketing campaigns for specific customer segments, ensuring higher relevance.
- Plan seasonal promotions aligned with historical sales trends to maximize sales during periods of high demand.

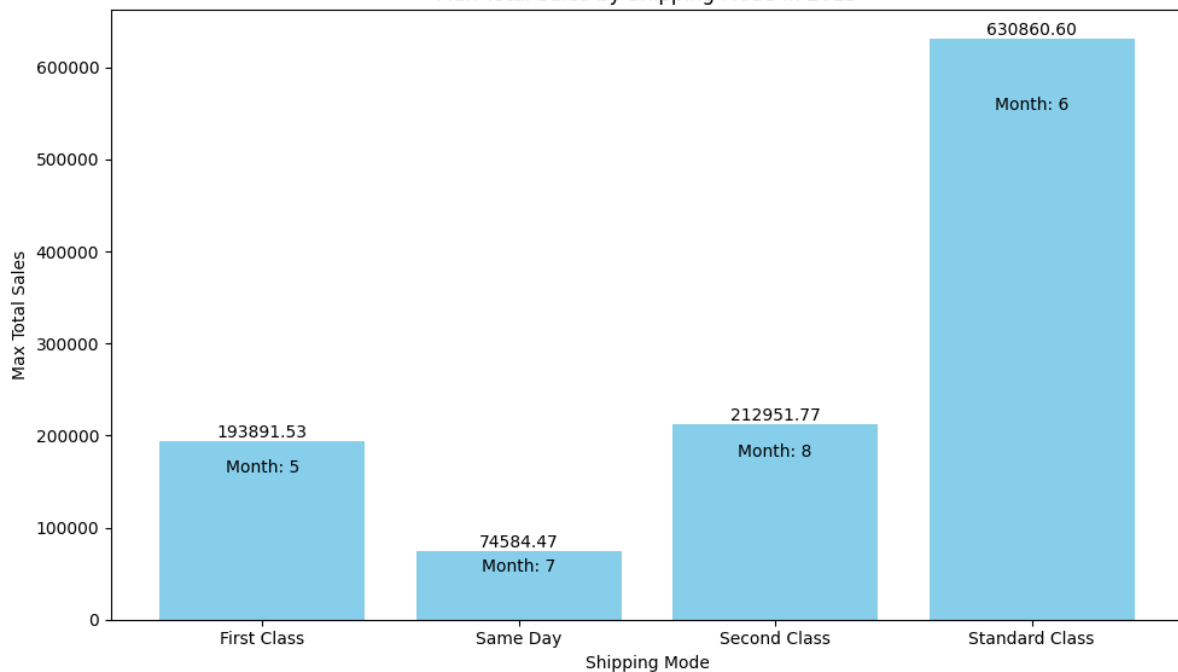




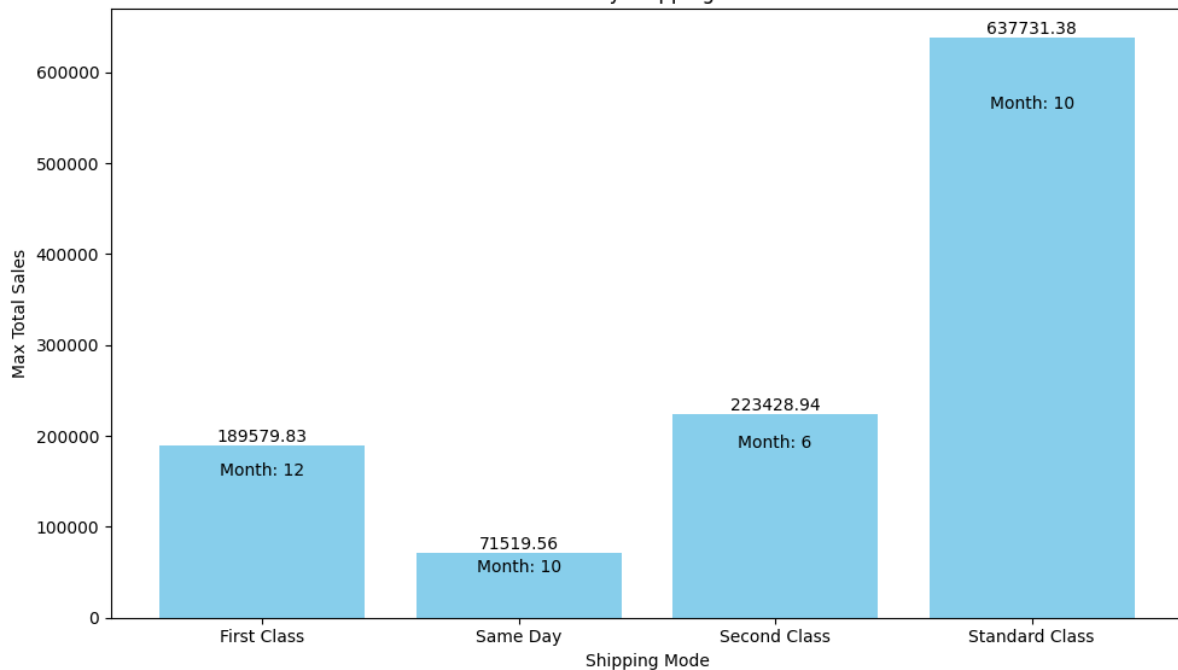
# Max Total Sales by Shipping Mode



Max Total Sales by Shipping Mode in 2015



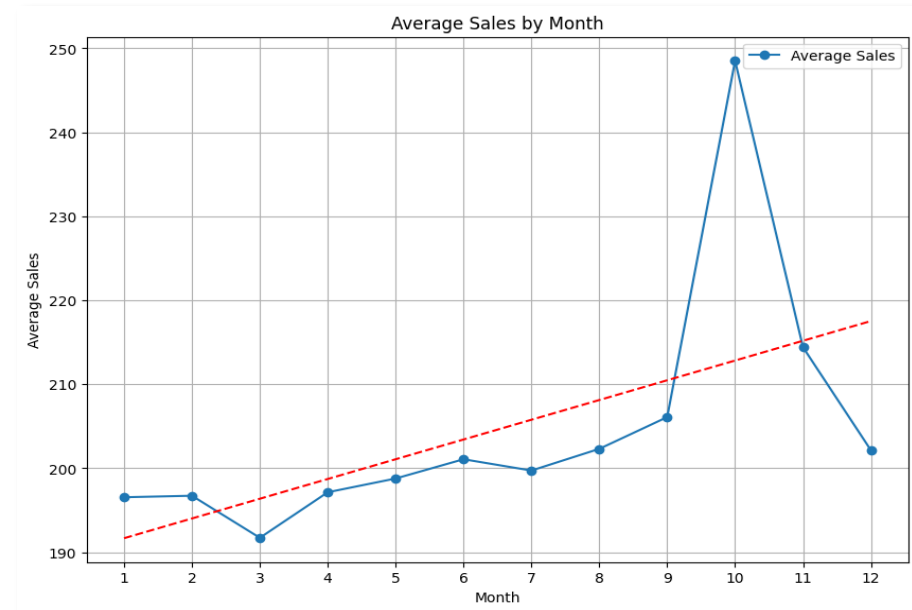
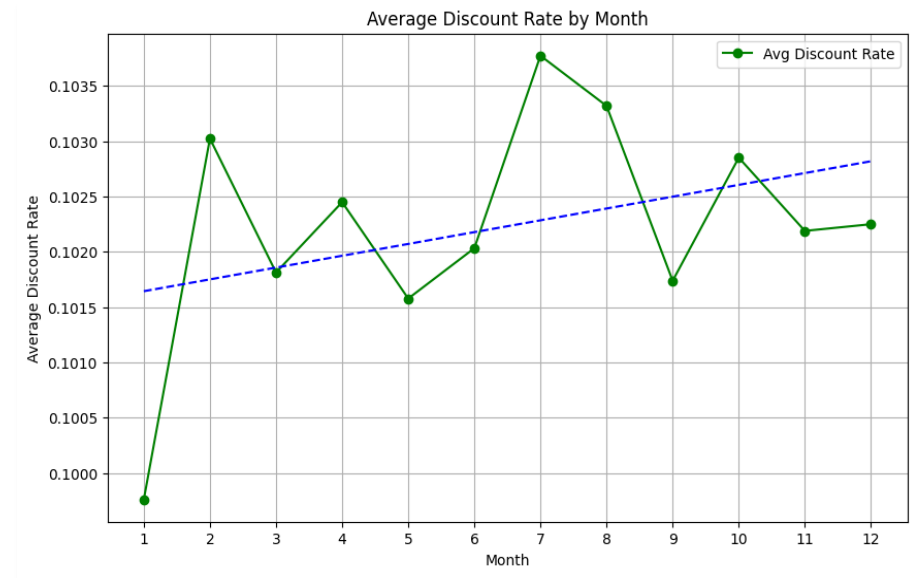
Max Total Sales by Shipping Mode in 2016

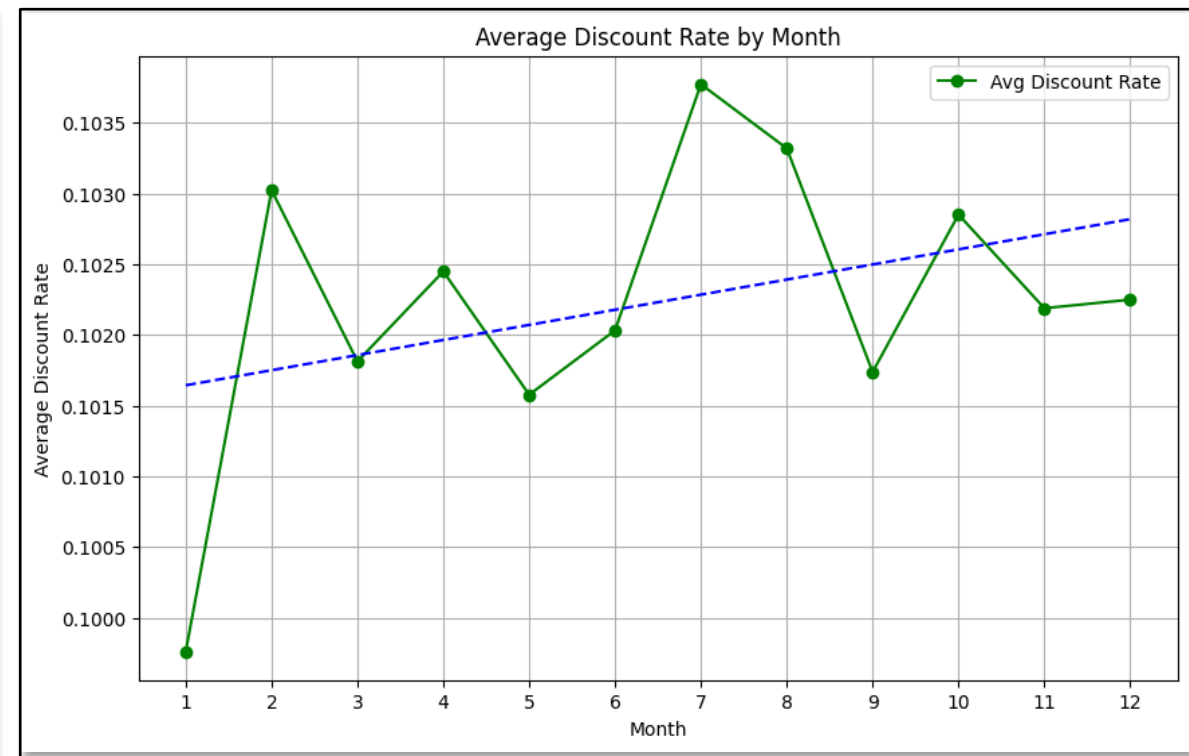
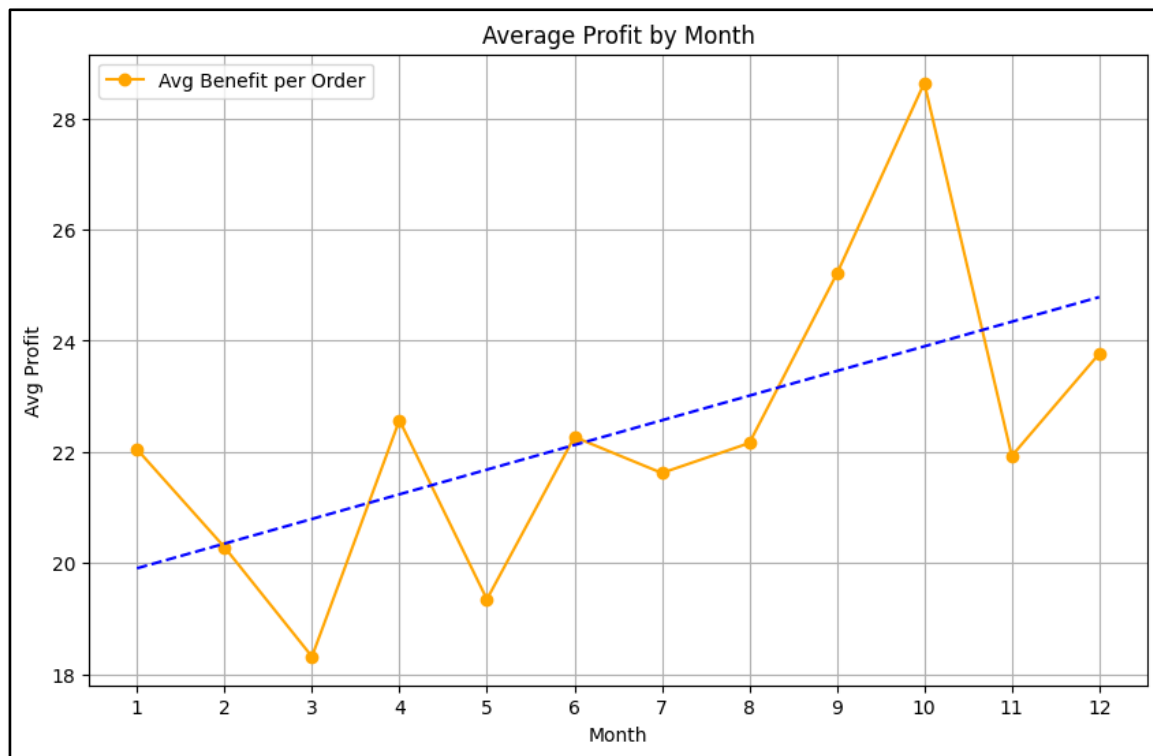


- The graphs here show which months of the year had the max total sales for each shipping mode.
- The time of the year where there was the greatest total sales with standard class shipping has been almost year-round across 2015-2018.
- Meanwhile, the other modes of shipping have not performed as successfully along with total sales. Same-day shipping has shown about 10 times less total sales than standard shipping. I.e., less purchases are being made with same-day shipments. Moreover, it is around the 3<sup>rd</sup> and 4<sup>th</sup> quarters in which we see the most sales made with same-day shipping.
- As such, to go back to the previous points about shipping mode efficiency and improving total sales for enhanced shipment modes, we suggest options such as offering possible discounts for same-day shipping or offering loyalty program rewards with a points system to promote these additional shipping modes.

# Discount effect on Sales

- The average of each month is taken over the course of three years, between 2015 to 2017.
- 2018 data was excluded due to only having data for January which skews the data – showing an inverse trend between sales and profit
- These two positive correlation to the increase of Discount Rate with the Average Sales per Month.
- The first quarter where discount rates were offered the lowest has a strong relationship to the lowest average sale of the first quarter.





# Discount effect on Profits

- An increase in sales does not necessarily mean an increase in profit since we take a cut in our revenues to offer discount rates
- However here we do have an increase of profits that positively correlates to average sales and discount rates.
- To increase the overall performance for the following years, we suggest more discount rates throughout the year but strongly the first quarter to have a steady stream of profits

# Conclusion

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In conclusion, the analysis of various factors influencing sales highlights the complexity of managing and optimizing business performance. External economic factors, internal business decisions, competitor actions, customer preferences, and operational factors all play significant roles in shaping sales outcomes.

To address these factors and enhance sales performance, our company should focus on several key strategies. Firstly, we should analyze monthly trends and address seasonal variations by implementing targeted promotions or new product launches to counteract sales declines during specific periods. Additionally, optimizing product and service offerings, including boosting sales of top-performing products and improving underperforming ones, is crucial for maintaining profitability.

Efficient shipping modes, such as promoting standard class shipping and enhancing same day and first-class shipping options, can also contribute to increased sales by meeting customer needs effectively. Moreover, prioritizing customer retention and acquisition through loyalty programs and gathering customer feedback for continuous improvement is essential for sustaining long-term sales growth.

Finally, strategic marketing and promotional efforts, informed by data analytics and aligned with seasonal trends, can further maximize sales opportunities. We would like to underline that while discounts may take a cut in revenue, at the wholistic level, there is a positive correlation between discount rates and overall business profits over time, and as such should be implemented as part of our business strategy proposal. By implementing these strategies, our company can adapt to changing market dynamics, improve customer satisfaction, and ultimately drive sales growth in a competitive environment.

THANK  
YOU!

