ACME COMPANY

Executive Summary: ACME company.

ACME Company I (Group 55)
Dec 7, 2023

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ACME INC.

2023 Financial Highlights- key findings

To the CEO of ACME Company,

This executive summary details the critical findings of ACME Company's sales data, customer feedback, and operational efficiency. Our analysis focused primarily on:

Sales Forecast and Regional Demand: Our sales data was sorted province-wise which allowed us to dive into potential reallocation of marketing and logistical resources to these regions. We also identified provinces that have showed a slowdown, necessitating a strategic reassessment of resource deployment.

Product Performance and Sales Trends: Top-performing products such as the Aerodynamic Linen Gloves and the Ergonomic Aluminum Table have demonstrated strong sales, indicating a positive reception in the market. Conversely, items like the Small Aluminum Bench and Heavy Duty Rubber Keyboard, with zero sales, call for a detailed diagnostic to understand market rejection and consider discontinuation or rebranding strategies.

Payment Method Preferences: Analysis of payment methods across provinces has highlighted the dominance of Visa and Mastercard. However, emerging payment methods like ApplePay are potentially gaining market share and we should therefore consider re-assessing our payment methods.

Inventory and Warehouse Efficiency: There are potential operational disparities across our warehouses, with different fulfillment times.

Customer Satisfaction and Product Reviews: Customer satisfaction metrics have revealed both consistently high-performing products and those with fluctuating ratings. It is crucial to engage directly with customers for comprehensive feedback on the lower-rated products for improvements.

Expenditure Breakdown: The proposed enhancement of our financial database to detail expenditures will be pivotal in highlighting high-cost areas.

Market Alignment and Product Quality: Products with a consistent zero rating require immediate quality review and customer follow-up. A thorough market analysis is crucial to ensure our product offerings meet market expectations and consumer needs.
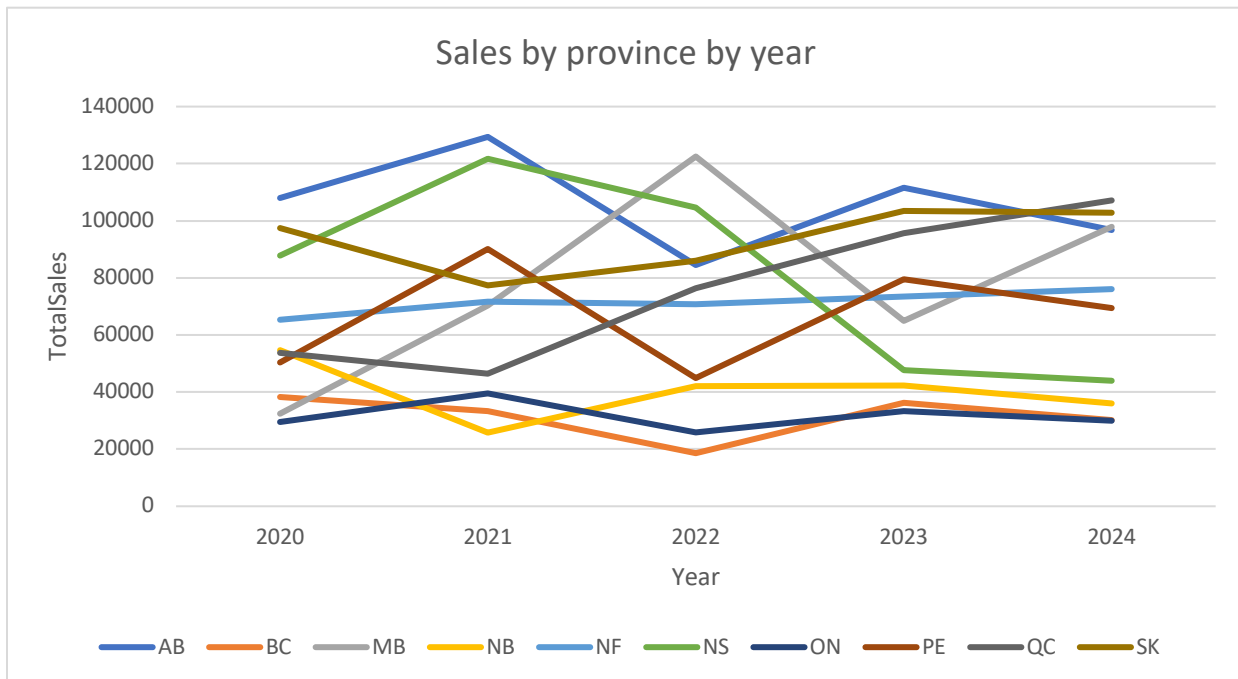
Analysis: Customers by Region (10 total points)
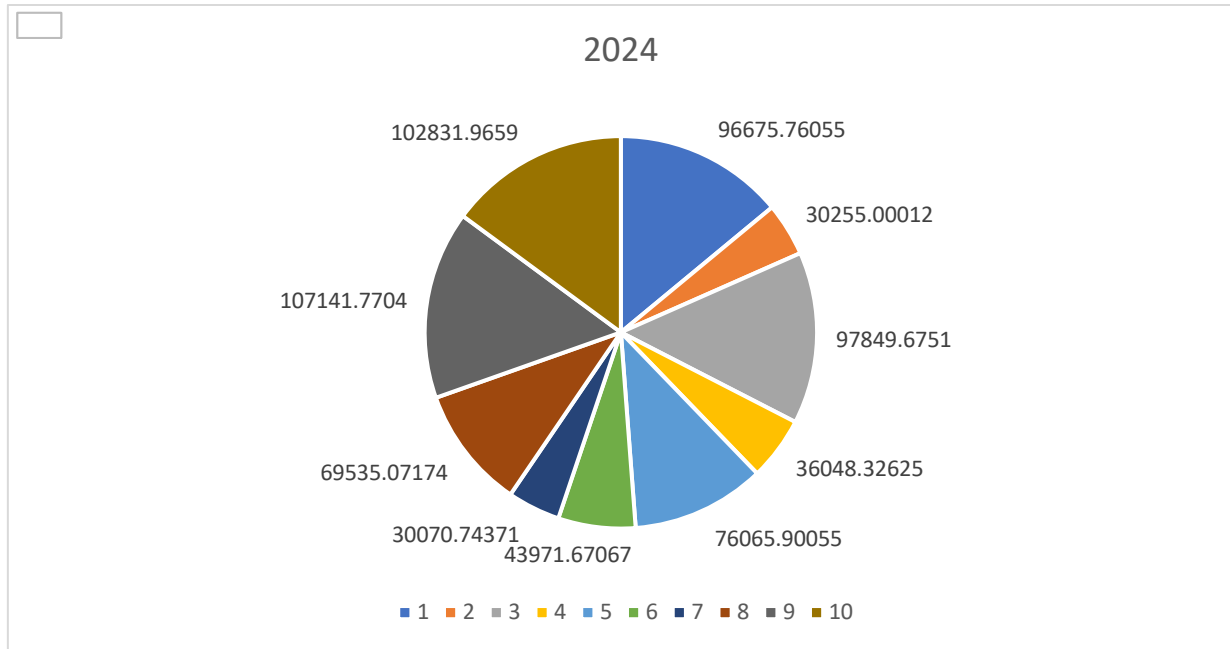
Overview of approach with assumptions

To predict sales for the upcoming years, we looked at past sales data sorted by province then by year. One of the methods used was excel's forecast and forecast. Linear functions, mapped on historical data. Our assumption is that we used sales (demand) as a metric to determine the number or customers by region.

province	2020	2021	2022	2023	2024
AB	107874.7	129388.9	84504.53	111461.9	96675.76
BC	38275.86	33369.75	18597.88	36223.72	30255
MB	32430.38	70422.49	122508	64843.24	97849.68
NB	54677.71	25795.73	42169.79	42256.85	36048.33
NF	65332.5	71624.36	70661.37	73371.89	76065.9
NS	87858.38	121721.9	104665.1	47712	43971.67
ON	29598.82	39533.94	25873.94	33378.43	30070.74
PE	50369.32	90113.32	44909.82	79613.28	69535.07
QC	53720.9	46438.46	76367.01	95684.88	107141.8
SK	97501.09	77365.62	86051.54	103450.7	102832

To management

Total sales is predicted to be strongest in provinces like Quebec or Alberta so we should focus our resources in these provinces to capitalize on this growth. It is worth looking into whether the warehouse in Kelowna (British Columbia) can be shifted to a province with higher demand such as Alberta since British Columbia's total sales growth is experiencing a decline in growth.

Sales by province by year

2024

102831.9659

96675.76055

30255.00012

107141.7704

97849.6751

69535.07174

36048.32625

30070.74371

43971.67067

76065.90055

■ 1 ■ 2 ■ 3 ■ 4 ■ 5 ■ 6 ■ 7 ■ 8 ■ 9 ■ 10

Analysis: Best and Worst Products (10 points)

### Overview of approach with assumptions

To predict the best and worst products, we looked at the sales data from 2020 to 2023 and forecasted data for 2024. We created a correction column to account for the fact that sales can be no less than 0 and replaced all negative values by 0. Data was analyzed based on the sales year, by using metrics like quantity sold and sales value as weight. The trend for sales volume for top 10 products was then visualized. Our assumption here is that there will be no big economic downturn that could impact sales significantly for the years 2023 and 2024.

Top 5
ProductID 181-Aerodynamic Linen Gloves (30006.43)
ProductID 17- Ergonomic Aluminum Table (29620.64)
ProductID 150- Incredible Wool Plate (29203.574)
ProductID 49- Awesome Cotton Watch (27978.254)
ProductID 113- Enormous Wool Computer (27824.359)

Bottom 5
ProductID 73- Small Aluminum Bench (0)
ProductID 39- Heavy Duty Rubber Keyboard (0)
ProductID 113- Sleek Steel Pants (0)
ProductID 45- Practical Linen Chair (0)
ProductID 9- Fantastic Rubber Bench (0)

Sale prediction for 2024
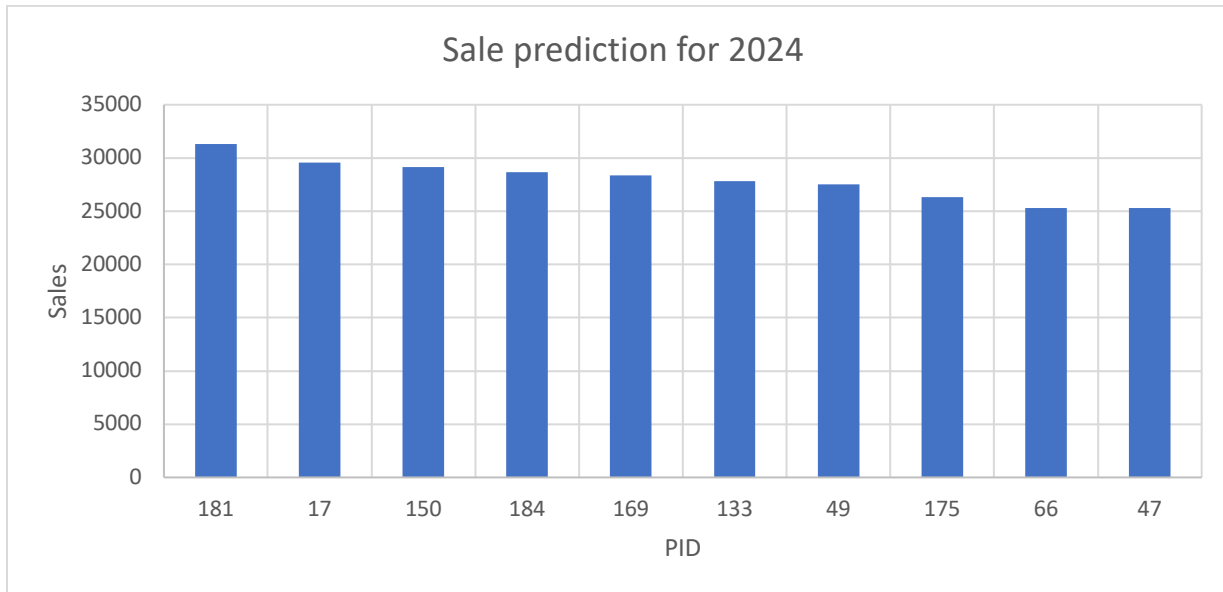
Recommendation/summary paragraph for management

Findings on the projection for 2024 (with an adjustment for sales value), suggest that we need to continue focusing and possibly advertising top selling products like Aerodynamic Linen Gloves, Ergonomic Aluminum Table and Incredible Wool Plate. We also need to look into products such as Small Aluminum Bench and Heavy Duty Rubber Keyboard. Furthermore, there are lots of products with zero sales. A more in-depth analysis needs to be conducted to understand why. Management could also check if those products are still in the inventory and should consider putting them on sales or getting rid of them so make space as we have only 3 warehouses available.
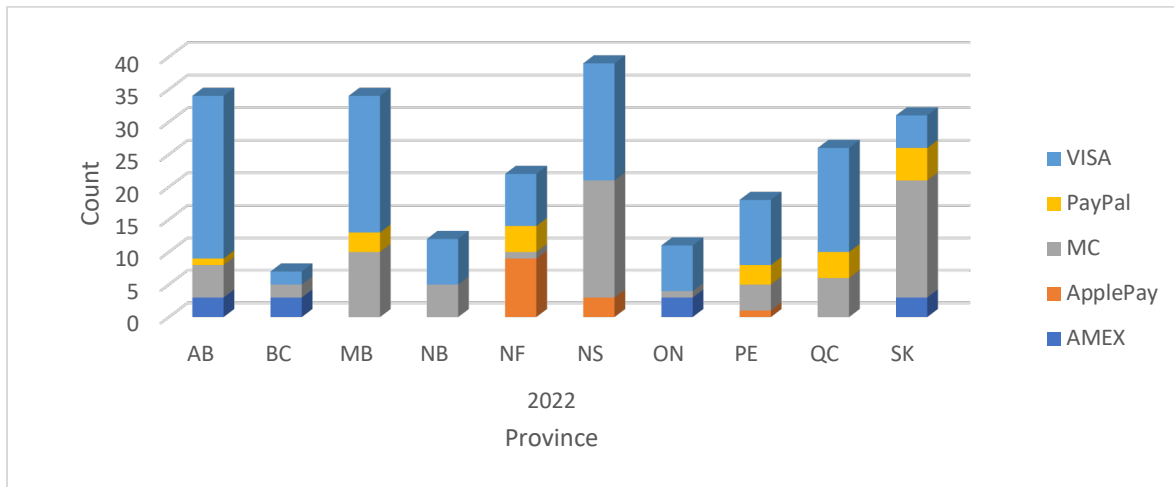
Analysis: Payment Methods (up to 5 total points)

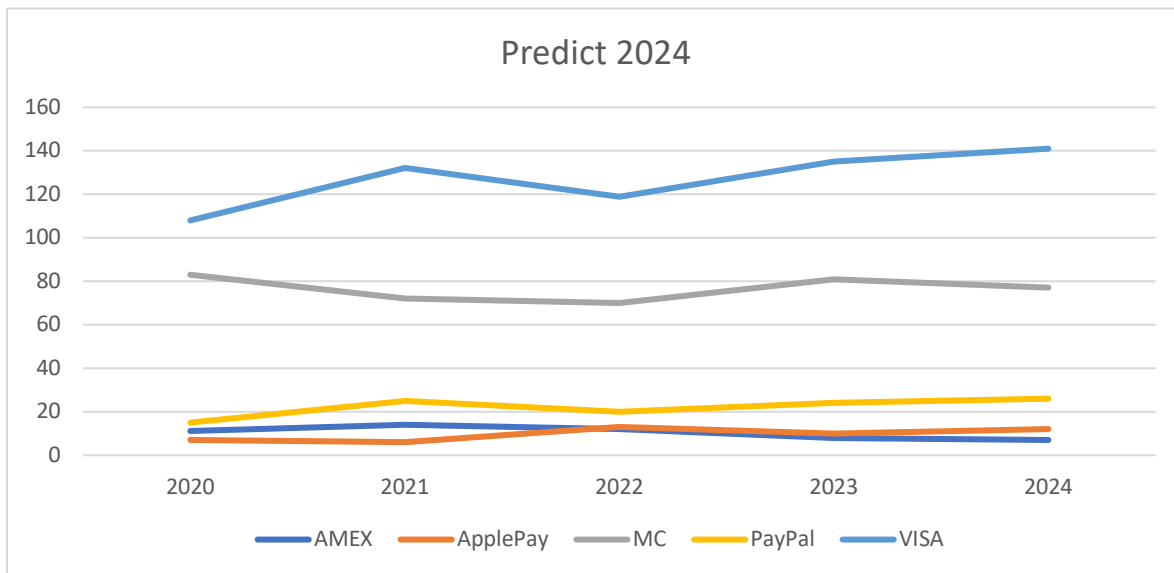## Overview of approach with assumptions

For 2022, we selected payment type and counted the number of transactions for each payment type sorted by province. To predict payment methods by 2024, we use's excel's forecast method. The assumption here is that there is no big change in taste and differences and that major card companies like Visa and Mastercard retain their customers.

	2020	2021	2022	2023	2024
AMEX	11	14	12	8	7
ApplePay	7	6	13	10	12
MC	83	72	70	81	77
PayPal	15	25	20	24	26
VISA	108	132	119	135	141

Visualization of payment methods used in 2022

## Visualization/prediction of payment methods for 2024

Analysis: Inventory Management (up to 10 total points)
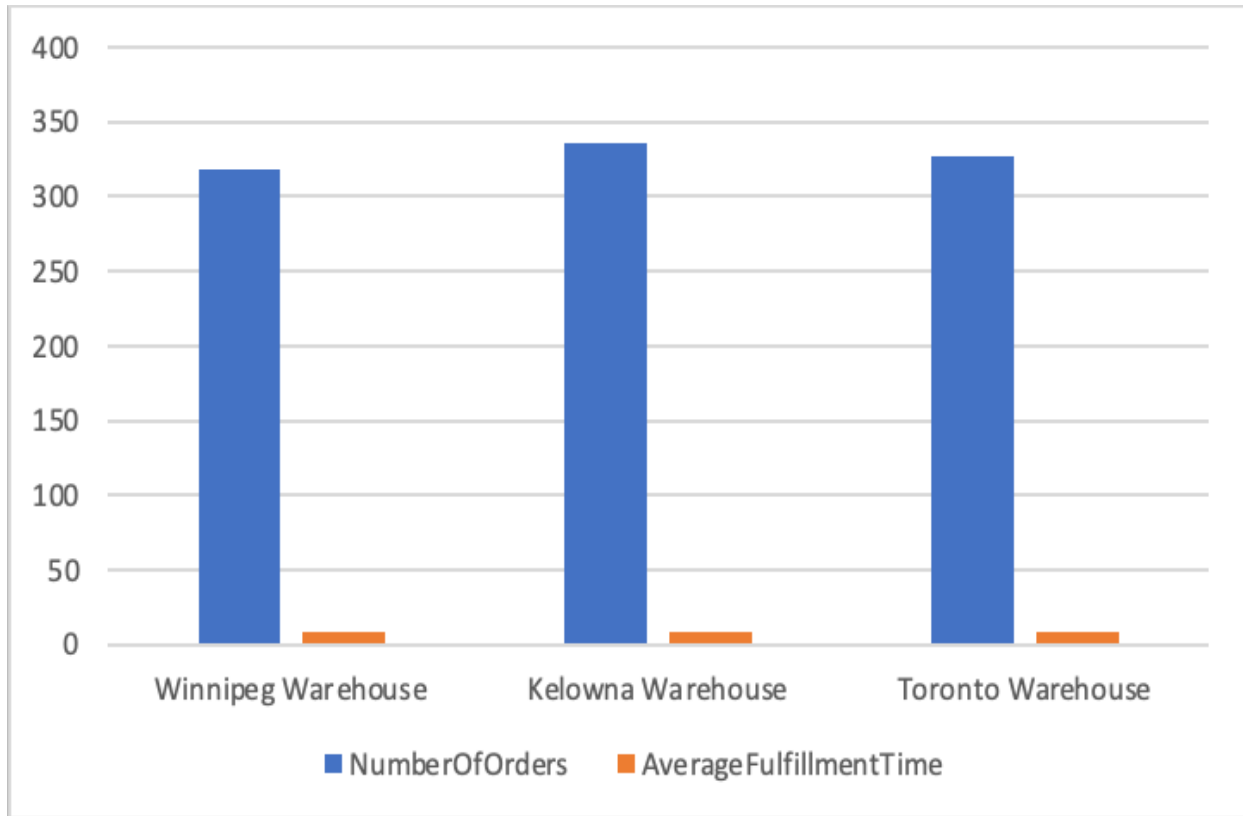
Overview of approach with assumptions

By joining warehouse, shipment, orderSummary and productInventory tables, we calculated the average time per warehouse by looking at the difference between when the orders were placed and when they were dispatched from the warehouse- a datediff function was used to calculate the average fulfillment time to do a deep dive on any potential warehouse inefficiencies. We also looked at the average fulfillment time per warehouse to inspect any inefficiencies.

To Management
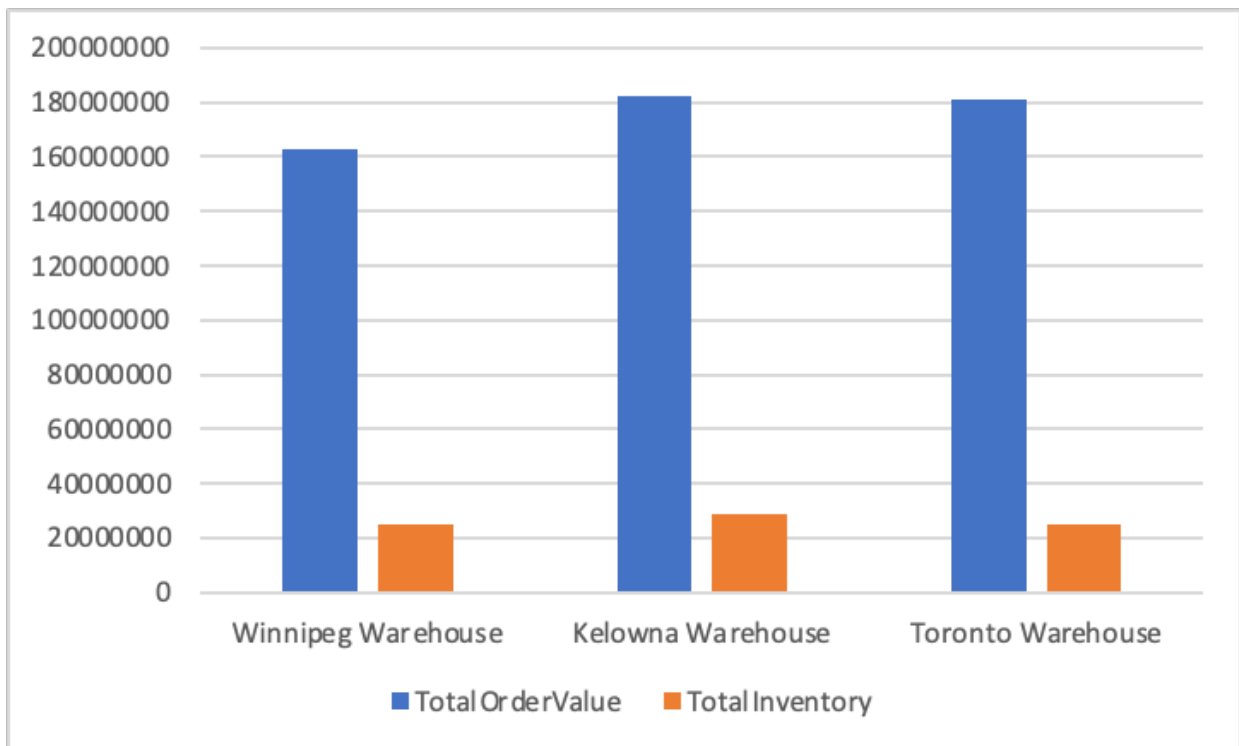
The bar charts indicate disparities in warehouse performance, with the Winnipeg and Kelowna warehouses having lower order values and inventory compared to Toronto. The second chart shows Winnipeg and Kelowna have fewer orders and higher average fulfillment times than Toronto.

Management should investigate operational efficiencies at the Toronto warehouse to identify best practices that could be implemented in Winnipeg and Kelowna. Additionally, consider redistributing inventory to better align with order volumes and improve fulfillment times across all locations. Optimizing inventory and order fulfillment could lead to increased customer satisfaction and sales.

■ NumberOfOrders	■ AverageFulfillmentTime

Analysis: Your Choice (up to 10 total points)

Overview of approach with assumptions
We decided to look at the product reviews to a) examine customer satisfaction, and b) used the forecast method to generate a 2024 best rating product prediction for the top 20 products.

To Management
Our analysis focused on the product reviews to assess customer satisfaction and forecast the best-rated products for 2024. Notably, we observed a diverse range of feedback across different products, with some products consistently receiving high ratings over the years, indicating sustained customer satisfaction.

PID	2019	2020	2021	2022	2023	2024
9	0.00	2.50	1.00	3.00	4.00	5.00
21	0.00	0.00	1.00	5.00	0.00	5.00
43	0.00	0.00	1.33	1.00	5.00	5.00
46	0.00	0.00	0.00	5.00	0.00	5.00
60	1.00	1.00	2.67	5.00	3.00	5.00
75	1.00	4.00	0.00	2.50	5.00	5.00
84	0.00	4.00	0.00	4.00	4.00	5.00
93	0.00	0.00	0.00	5.00	3.33	5.00
110	0.00	2.50	0.00	3.00	3.50	5.00
112	0.00	0.00	0.00	5.00	0.00	5.00

2024 BEST RATING PRODUCT PREDICTION
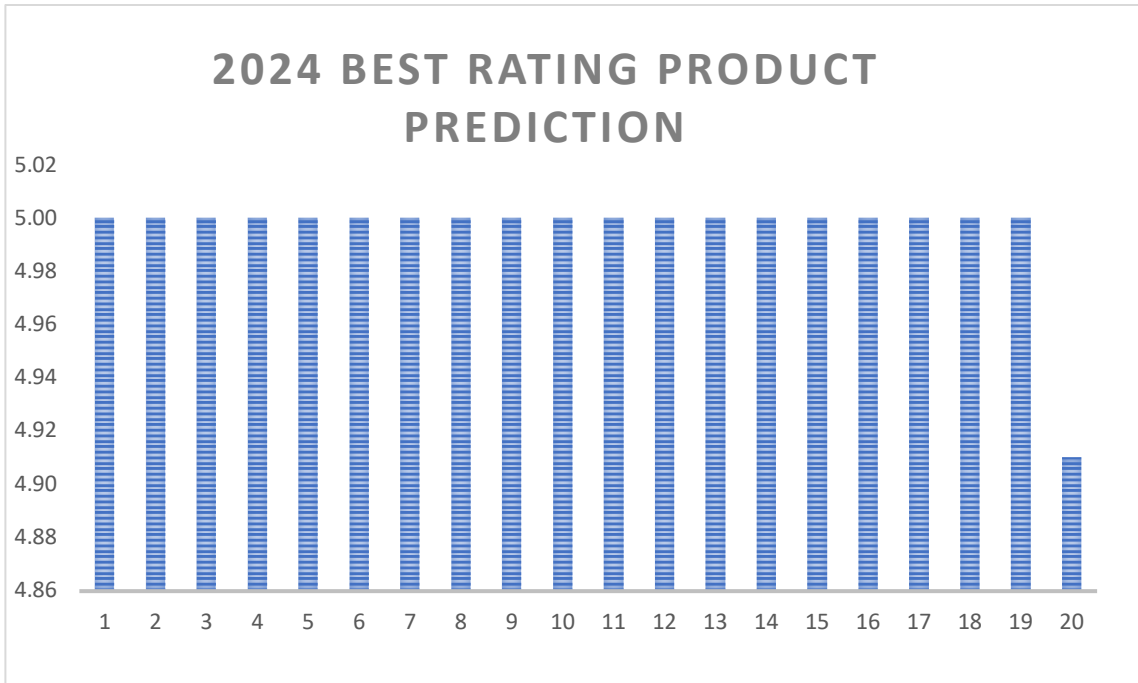
The review data extracted reveals valuable insight in product reception; while there are some products (such as ProductID 2 and 60) who have experienced steady upward trends in rating, there are products (such as ProductID 21 and 75) which experience very volatile and steep fluctuations over the years. Our recommendation is to follow-up with the customers to debug and identify areas of improvement.

Product Performance 2019-2023
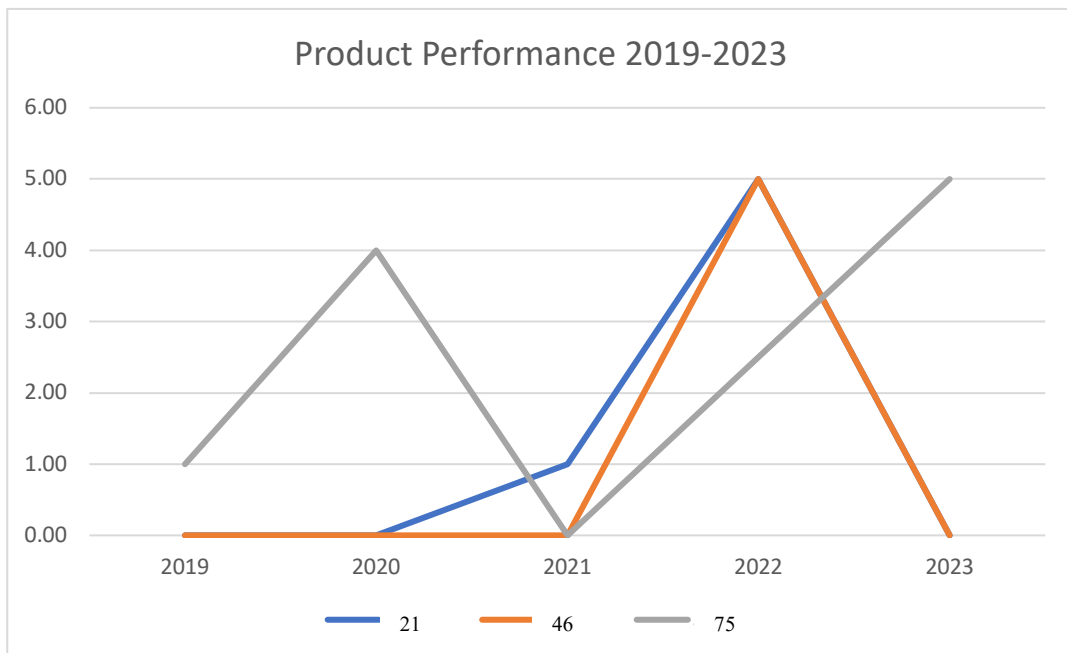
Analysis: Your Choice (up to 10 total points)

Overview of approach with assumptions

To gain a deeper understanding of our sales trends, we conducted an analysis segmented by year, month, and total monthly sales. The assumption the latter could be retrieved from orderDate. By selecting the year of orderDate as year, month of oderDate as month and the aggregation of the MonthlySalesTotal, we were able to get a comprehensive monthly sales data. Recognizing the periods of peak and low sales aligns with our goal for strategic planning- inventory, staffing, and marketing efforts.
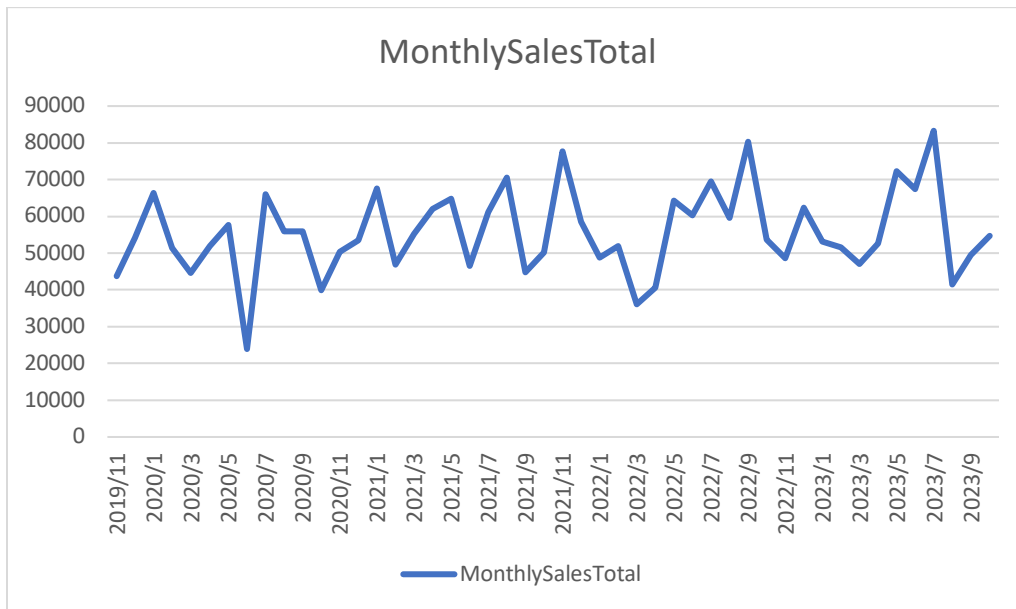
To Management

Our analysis suggests a fluctuating trend in monthly sales, indicating potential seasonality and potential market volatility. It's crucial for management to delve into these fluctuations to understand the underlying causes. It is also recommended to look into future potential strategies to maximize profits during peak seasons.

General and Open Category (up to 20 total points)

The database should include a breakdown of expenditure as it will give us real insight into how to reduce any potential operational inefficacies, minimize them as well as a way to track expenses over time. A breakdown of expenses would also allow us to identify potential areas which require more resources (warehouse transport, electricity, other overheads).

The database should also contain a table to track all products that have been returned to maintain product quality and customer satisfaction. By tracking this against sales data, we can make more informed decisions on product improvements, inventory, or potential discontinuation to a more holistic view of product life cycles.

Targeted market research is recommended. Through tailored advertising initiatives, promotional events, and customer surveys, we can uncover provincial preferences and taste variances. We recommend adapting our product portfolio to meet regional demands more effectively in our recommender system.

We also recommend doing a more thorough product review as well as trying to gather more data. A zero rating on products (such as ProductID 182, 188, 190 or 191)is a strong indicator that necessitates immediate attention to address any underlying issues that lead to customer dissatisfaction. We recommend following up with customers to solicit feedback to maximize quality assurance.

We also strongly recommend performing a market analysis to make sure that the products are well within market and customer expectations.

Lastly, We propose the introduction of an age/demographic analysis. This enhanced demographic insight will enable us to forge more strategic partnerships with influencers and celebrities whose brand and audience align closely with our target market segments.

List of Web and AI sources used

1. FORECAST and FORECAST.LINEAR functions:
   https://support.microsoft.com/en-us/office/forecast-and-forecast-linear-functions-50ca49c9-7b40-4892-94e4-7ad38bbeda99

2. DATEDIFF function

   https://www.w3schools.com/sql/func_sqlserver_datediff.asp

3. Logo designed on PowerPoint**

Analysis Project Features List Template

Analysis Features	Category	Possible Points	Points	Comments
Documentation (15 total points)				
Executive Summary (up to 1 page)	Core	2		
Feature List	Core	2		
List of Web and AI sources used	Core	3		
Summary Report (up to 15 pages)	Core	8		
Analysis: Customers by Region (10 total points)				
Overview of approach with assumptions		3		
Predicted sales for 2023+2024 for each province and at least two charts or visualizations		4		
Recommendation/summary paragraph for management		3		
Analysis: Best and Worst Products (10 points)				
Overview of approach with assumptions		3		
Predicted sales for 2023+2024 for top 5 and bottom 5 products with at least two charts or visualizations		4		
Recommendation/summary paragraph for management		3		
Analysis: Payment Methods (up to 5 total points)				
Overview of approach with assumptions		1		
Visualization of payment methods used in 2022		2		
Visualization/prediction of payment methods for 2024		2		
Analysis: Inventory Management (up to 10 total points)				
Overview of approach with assumptions		3		
Perform analysis with at least two charts or visualizations		4		
Recommendation paragraph to management		3		
Analysis: Your Choice (up to 10 total points)				
Overview of approach with assumptions		3		

Perform analysis with at least two charts or visualizations		4					
Recommendation paragraph to management		3					
Analysis: Your Choice (up to 10 total points)							
Overview of approach with assumptions	3						
Perform analysis with at least two charts or visualizations	4						
Recommendation paragraph to management	3						
General and Open Category (up to 20 total points)							
Suggest database improvements	3						
Other (your suggestions including using tools besides Excel)	Up to 20						
Total: (out of 50 with max of 10 bonus. i.e. 60 is max.)							