Overview

This report takes a high-level look at the basic dealings of the ACME company. The following Analysis focuses on the geographical success, popular payment methods, optimizing product inventory, and highlights the products that should be a focus in the coming years. This will act as a starting point for the ACME's plan over the 2024 and 2025 seasons.

Key Findings

Geographical
- Manitoba, Quebec, Alberta, and Saskatchewan are expected to contribute 58% of total revenue.
- BC, Ontario, and New Brunswick are expected to contribute 13% of total revenue in 2024 and 2025.

Payment
- Visa and MasterCard are the most common payment methods and are expected to continue to be the most popular.
- ApplePay is seeing an increase in usage.
- Paypal and American Express are seeing a decrease in usage.

Warehouse And Inventory
- There are 100 times more items in storage than items sold each year.
- The Toronto warehouse ships more products than the Winnipeg and Kelowna warehouses combined.

Recommendations

Geographical
- Improve service to BC, Ontario, New Brunswick, and Nova Scotia to bring their low sales up to the sales made by the top provinces.

Payment
- Increased support for ApplePay to match the growth in popularity.
- Add support for SamsungPay and Cryptocurrency to increase the range of potential customers.

Products
- Focus attention on promoting the following popular products that are expected to perform well
    - Incredible Wool Plate
    - Heavy Duty Marble Table
    - Mediocre Aluminum Plate
    - Lightweight Plastic Watch
    - Gorgeous Paper Wallet

- Aerodynamic Copper Bag

- Discontinue the following items that are expected to perform poorly
    - Heavy Duty Rubber Keyboard
    - Lightweight Wooden table
    - Aerodynamic Leather Watch
    - Small Aluminium Bench
    - Fantastic Wooden Chair

Warehouse And Inventory
- Less items should be stocked to match the demand for the products.
- Increasing the size of the Toronto warehouse to match the amount of orders processed in Toronto.

Additionally, we suggest a follow-up market analysis to capitalize on certain trends

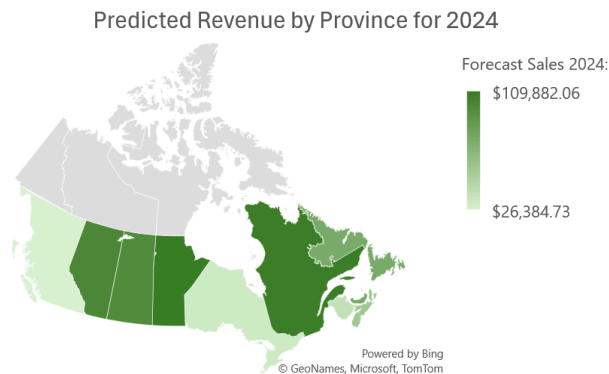These suggestions aim to optimize the 2024 and 2025 success of the company.

Analysis of Customers by Region

Assumptions:
1. Remaining revenue for 2023 are assumed to make up 25% of 2023's overall revenue
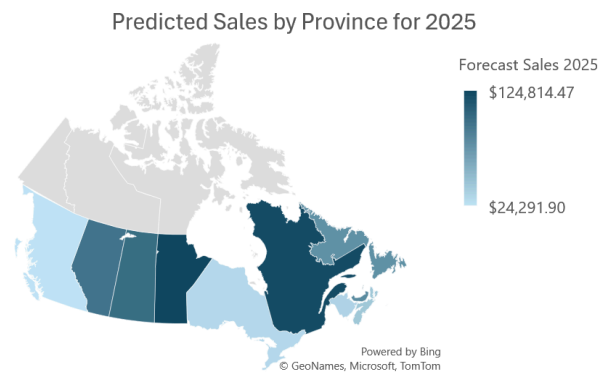2. 2019's incomplete data is assumed to be an inaccurate representation of current trends.

The data was first prepared for analysis by increasing 2023 data by 20%, and removing 2019 data. The revenue for each province was calculated based on orders from customers that were located within that province. After the data for each province for years 2020 to 2023 were calculated, linear regression was used to extrapolate the data to 2024 and 2025. The results of this prediction are shown in the charts below.

Province:	Forecast Sales 2024:
Manitoba	$ 109,882.06
Quebec	$ 107,007.94
Alberta	$ 99,776.86
Saskatchewan	$ 97,725.88
PEI	$ 76,883.53
Newfoundland	$ 76,036.32
Nova Scotia	$ 56,115.36
New Brunswick	$ 36,002.89
Ontario	$ 31,515.99
BC	$ 26,384.73

Predicted Revenue by Province for 2024

Forecast Sales 2024:
$109,882.06
$26,384.73

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In 2024 we expect Manitoba, Quebec, Alberta, and Saskatchewan to be the largest sources of revenue, making up to 58% of the total revenue. BC, Ontario, and New Brunswick are expected to contribute the least to revenue, only 13%.

Province:	Forecast Sales 2025
Manitoba	$ 124,814.47
Quebec	$ 122,589.98
Saskatchewan	$ 100,379.34
Alberta	$ 96,364.59
PEI	$ 81,136.37
Newfoundland	$ 78,351.84
Nova Scotia	$ 42,365.76
New Brunswick	$ 33,914.04
Ontario	$ 31,283.88
BC	$ 24,291.90

Predicted Sales by Province for 2025

Forecast Sales 2025
$124,814.47
$24,291.90

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The 2025 ratios are about the same but with notable increases in sales from 2024 of about $20,000 more in sales from each of the top 4 provinces but the worst 4 provinces are expected to decrease in sales.

We suggest ACME focuses on improving service to BC, Ontario, New Brunswick, and Nova Scotia with a specific focus on BC to capitalize on the Kelowna warehouse. Alternatively, we suggest focusing entirely on Manitoba, Quebec, Saskatchewan, Alberta, PEI, and Newfoundland to focus on increasing the already high profits from these provinces while putting less money into the smaller profit provinces to more effectively allocate resources.

Best and Worst Products

Assumptions:
3. If a product had no sales in 2023 it is assumed to be discontinued.
4. Remaining revenue for 2023 are assumed to make up 25% of 2023's overall revenue
5. 2019's incomplete data is assumed to be an inaccurate representation of current trends.
6. Larger negative results in predictions are assumed to correlate to a faster decline in sales.

To prepare the database, all products that had no sales in 2023 were removed from the data since they are assumed to be discontinued. 2023 revenue data was increased by 20% to make the last 2 months worth 25% of total revenue that year. 2019 data was removed from the dataset since it is assumed that including 2019 will skew the results.

After these edits to the data were made, a linear regression analysis was applied to all remaining products. The top 5 and worst 5 products were then chosen to be the focus.

2024 Top 5 Products

2025 Top 5 Products

We recommend that the company focuses their attention on the following products:
- Incredible Wool Plate
- Heavy Duty Marble Table
- Mediocre Aluminum Plate
- Lightweight Plastic Watch
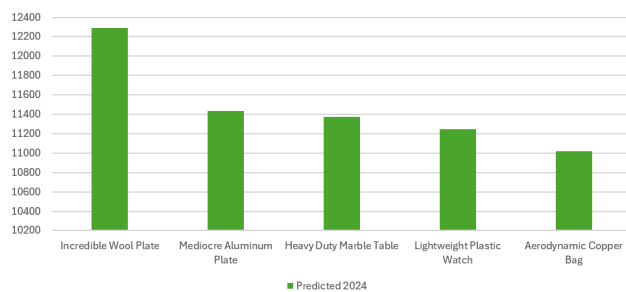- Gorgeous Paper Wallet
- Aerodynamic Copper Bag

As these are the items expected to perform the best in the coming years.

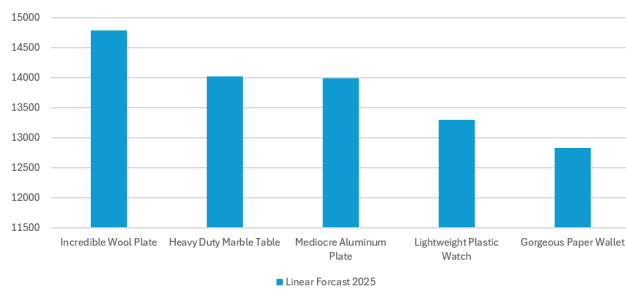We recommend that the following products be discontinued:
- Heavy Duty Rubber Keyboard
- Lightweight Wooden table
- Aerodynamic Leather Watch
- Small Aluminium Bench
- Fantastic Wooden Chair

In addition to discontinuing these items we recommend a follow up analysis focused on the history of these products in the context of the overall market. This can be used to inform future product decisions.
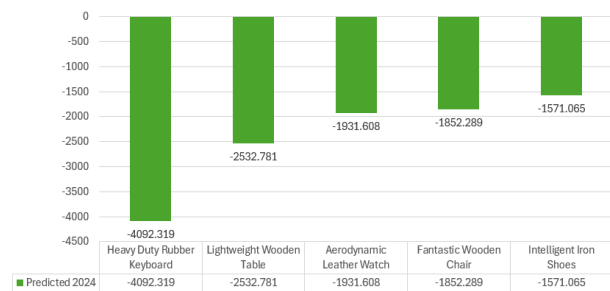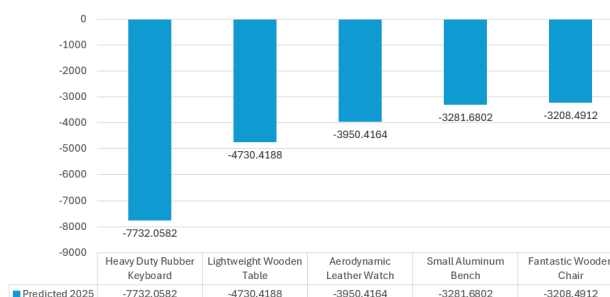

2024 Worst 5 Products

	Heavy Duty Rubber Keyboard	Lightweight Wooden Table	Aerodynamic Leather Watch	Fantastic Wooden Chair	Intelligent Iron Shoes
Predicted 2024	-4092.319	-2532.781	-1931.608	-1852.289	-1571.065

2025 Worst 5 Products

|	Heavy Duty Rubber Keyboard	Lightweight Wooden Table	Aerodynamic Leather Watch	Small Aluminum Bench	Fantastic Wooden Chair
Predicted 2025	-7732.0582	-4730.4188	-3950.4164	-3281.6802	-3208.4912

Payment Methods

Assumptions:
1. The number of times a payment method was used is more important than the number of customers using each payment method.
2. Remaining revenue for 2023 are assumed to make up 25% of 2023's overall revenue
3. 2019's incomplete data is assumed to be an inaccurate representation of current trends.

The data was first prepared for analysis by increasing 2023 data by 20%, and removing 2019 data. The amount of times each payment method was used was then compiled into the pie charts below.

Payment Methods 2022 / Predicted Payment Methods 2024
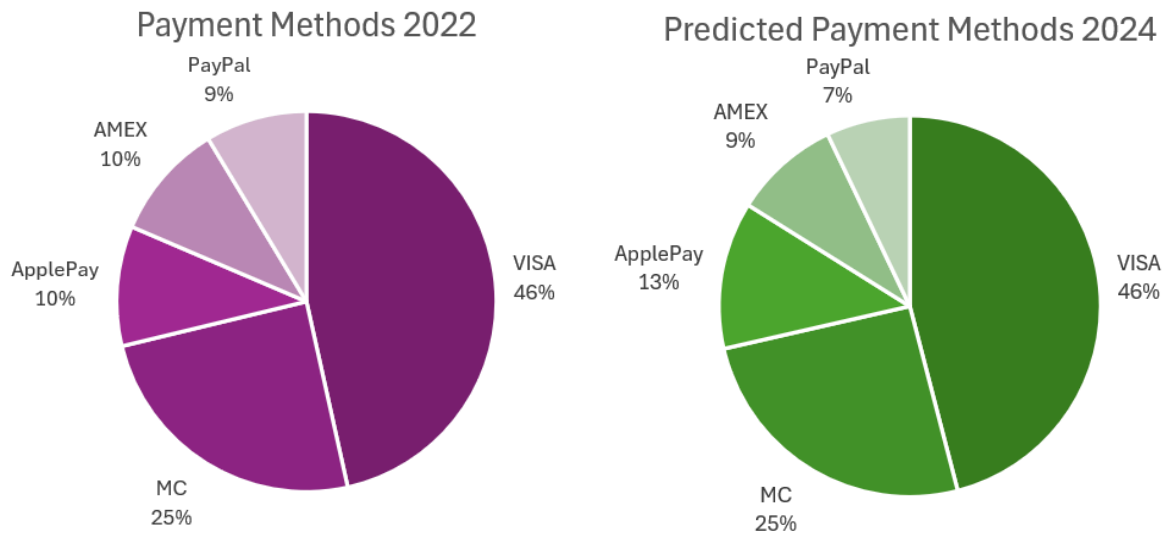
In 2022 the majority of purchases were made with Visa while only 9% were made with PayPal. In 2024, while VISA will remain the prominent purchasing choice, we predict that ApplePay will increase in popularity while PayPal decreases.

We suggest that your company increases support for ApplePay users while continuing to provide support for VISA and MC customers. Additionally, we suggest collecting information on what other payment options your target audience use and introduce support for these options. These could include SamsungPay or Cryptocurrency.

Inventory Management

Assumptions:
1. Remaining revenue for 2023 are assumed to make up 25% of 2023's overall revenue
2. 2019's incomplete data is assumed to be an inaccurate representation of current trends.

To prepare the database for analysis, the 2023 data was increased by 20% and the 2019 data was removed. Then, a linear regression analysis was applied to the sales data for each item to predict the sales for 2024. This information was put into the charts below (In green) in comparison to the amount of stock the company has of each item (In purple). The chart on the right shows only the 5 products with the highest stock and is on a logarithmic scale, while the chart on the left shows the overall difference between the stock and the expected sales.
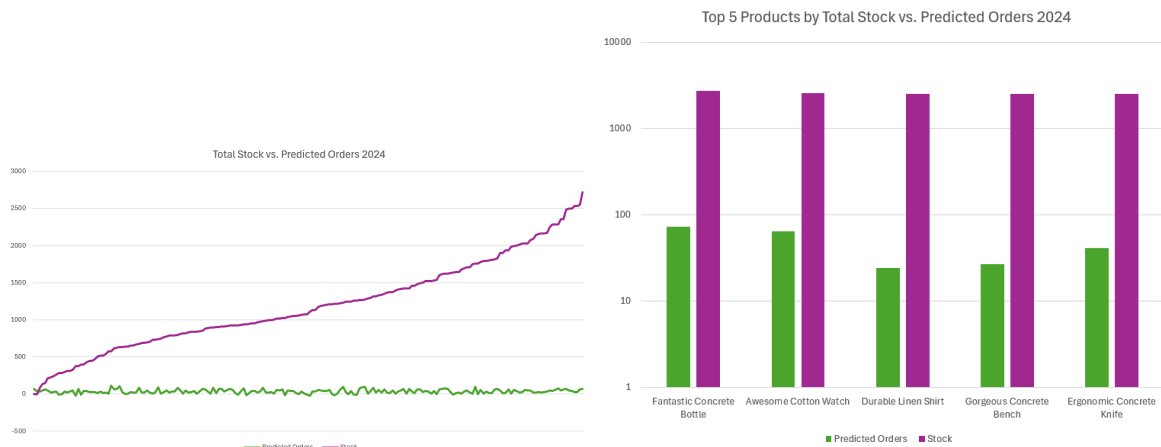

This analysis gave us a very unexpected result and shows a major flaw in the company's stocking system. We were initially expecting to find and highlight some products that have a current stock lower than the amount they were expected to sell within the next year. While we did find 2 examples of this (Ergonomic Wooden Wallets and Lightweight Silk Bottles both have 0 in stock while they are expect to get 67 and 31 orders respectively), the much more alarming finding was that the company is stocking way more of each product than it could possibly sell in any reasonable time frame. For more than half of the products, the company is stocking at least 1,000 more items than they would be selling in the next year. For reference, the most orders a single item is expected to get in 2024 is 112. For many of of these products, it could take well over 10 years to sell their entire stock.

In short, we suggest that the company stops overstocking the majority of their products. Instead, they should look at stocking products based on their current and predicted popularity. In addition, the company should buy more stock for the 2 products that have no stock. The company should also focus on removing any stock that will likely never be sold in order to free up some space.

Your Choice: Warehouse Management

Assumptions:
1. Year data is not included as we want a general view of which products are most popular per province.
2. The quantity of items sold was analyzed.
3. It is assumed that the size of the warehouses is equal.
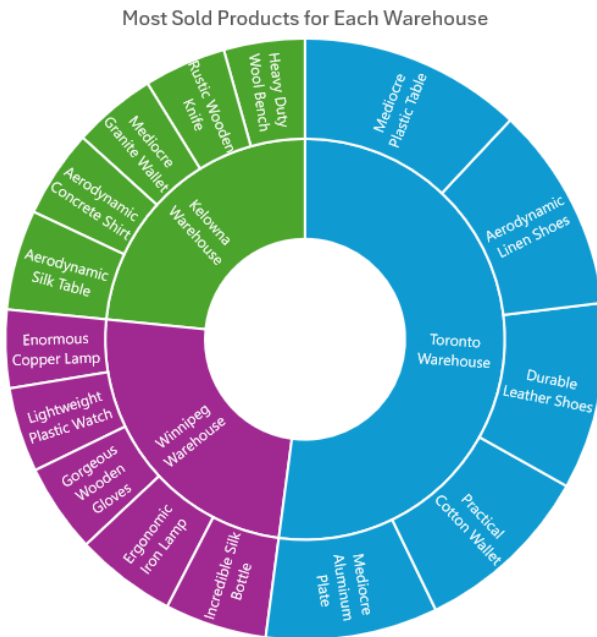
The quantity of items sold from each warehouse was collected before we selected the top items from each warehouse.

The amount of orders from the top items plus the relative amount that was sold is compiled in the graph to the left. Observe that the warehouse located in Toronto sells more items than the other two warehouses combined.

Above, the most ordered products for each warehouse is shown. We can see that the top item from the Toronto warehouse is double the top items of the other warehouses.

We suggest that the company focuses on increasing the size of the Toronto warehouse to accommodate for the larger number of orders that are coming out of it. We suggest that the warehouse size is at least double the size of the Winnipeg and Kelowna warehouses.

Feature List

Features	Status	Comments
Documentation (15 total points)		
Executive Summary	Core ▾	
Feature List	Core ▾	
List of Web and AI sources used	Core ▾	
Summary Report (up to 15 pages)	Core ▾	
Analysis: Customers by Region (10 total points)		
Overview of approach with assumptions	Completed ▾	
Predicted sales for 2023+2024 for each province and at least two charts or visualizations	Completed ▾	Predicted sales for 2024+2025 instead of 2023+2024
Recommendation/summary paragraph for management	Completed ▾	
Analysis: Best and Worst Products (10 points)		
Overview of approach with assumptions	Completed ▾	
Predicted sales for 2023+2024 for top 5 and bottom 5 products with at least two charts or visualizations	Completed ▾	Predicted sales for 2024+2025 instead of 2023+2024
Recommendation/summary paragraph for management	Completed ▾	
Analysis: Payment Methods (up to 5 total points)		
Overview of approach with assumptions	Completed ▾	
Visualization of payment methods used in 2022	Completed ▾	
Visualization/prediction of payment methods for 2024	Completed ▾	

Features	Status	Comments
Analysis: Inventory Management (up to 10 total points)		
Overview of approach with assumptions	Completed ▾	
Perform analysis with at least two charts or visualizations	Completed ▾	
Recommendation paragraph to management	Completed ▾	
Analysis: Your Choice (up to 10 total points)		
Overview of approach with assumptions	Completed ▾	
Perform analysis with at least two charts or visualizations	Completed ▾	
Recommendation paragraph to management	Completed ▾	
Analysis: Your Choice (up to 10 total points)		
Overview of approach with assumptions	Incomplete ▾	
Perform analysis with at least two charts or visualizations	Incomplete ▾	
Recommendation paragraph to management	Incomplete ▾	
General and Open Category (up to 20 total points)		
Suggest database improvements	Incomplete ▾	
Suggest database improvements Done 3 Other (your suggestions including using tools besides Excel)	Incomplete ▾	

List of Web and AI Sources Used

- [9 types of Online Payments](#)
- ChatGPT
    - "What is an executive summary?"
    - How to format an executive summary.