

Exploratory Data Analysis in Retail Report

Dataset used : SampleSuperstore (<https://bit.ly/3i4rbWl>)

Provided by The Spark Foundation in the 3rd Data Task

Report prepared by : Anis Guechtouli

Date : 18/07/2024

Introduction

Objective :

The main goal of this report is to analyze sales and profit data of a superstore in order to identify business problems and provide actionable recommendations to overcome these issues and improve profitability.

Data :

The provided dataset consists of 9994 sales records spanning 3 main categories: Furniture, Office Supplies and Technology. It contains the following features : Ship Mode, Segment, Country, City, State, Postal Code, Region, Category, Sub-Category, Sales, Quantity, Discount, and Profit.

Methodologie

Visualizations

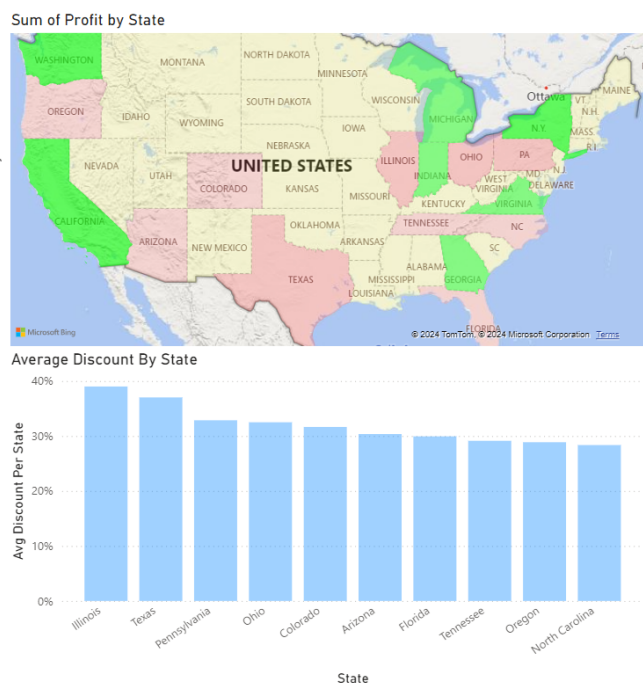
Multiple visualizations were created to better understand the business and identify challenges. Similar visualizations presenting redundant information were excluded to maintain focus on the most relevant insights.

KPI Selection

The following KPI have been selected to understand the business performance

- Total sum of Sales

- # Dashboard

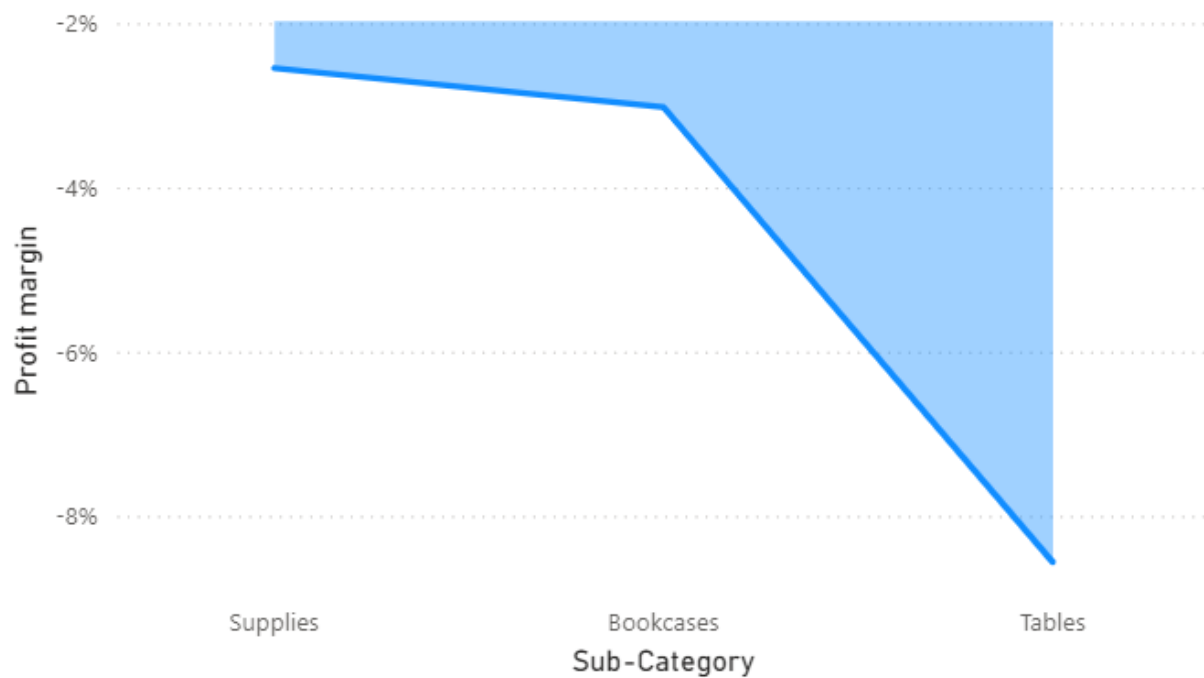


Key findings

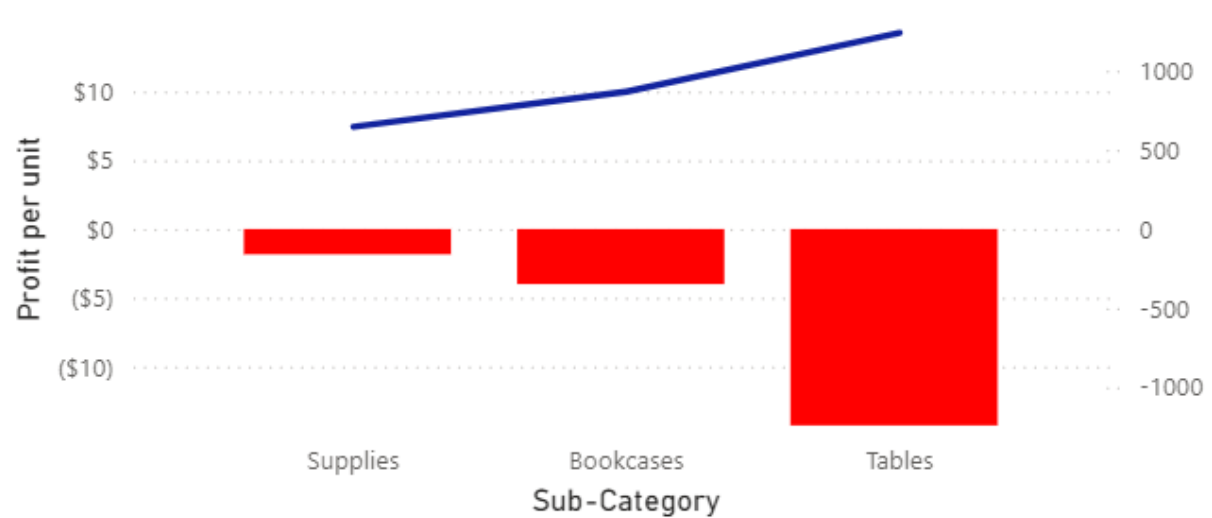
1. Some products are not profitable (Negative Profit)

Visuals :

Profit margin by Sub-Category



Profit per unit and Quantity by Sub-Category



Analysis :

These products are consistently unprofitable, which could be due to high production cost or ineffective pricing strategies.

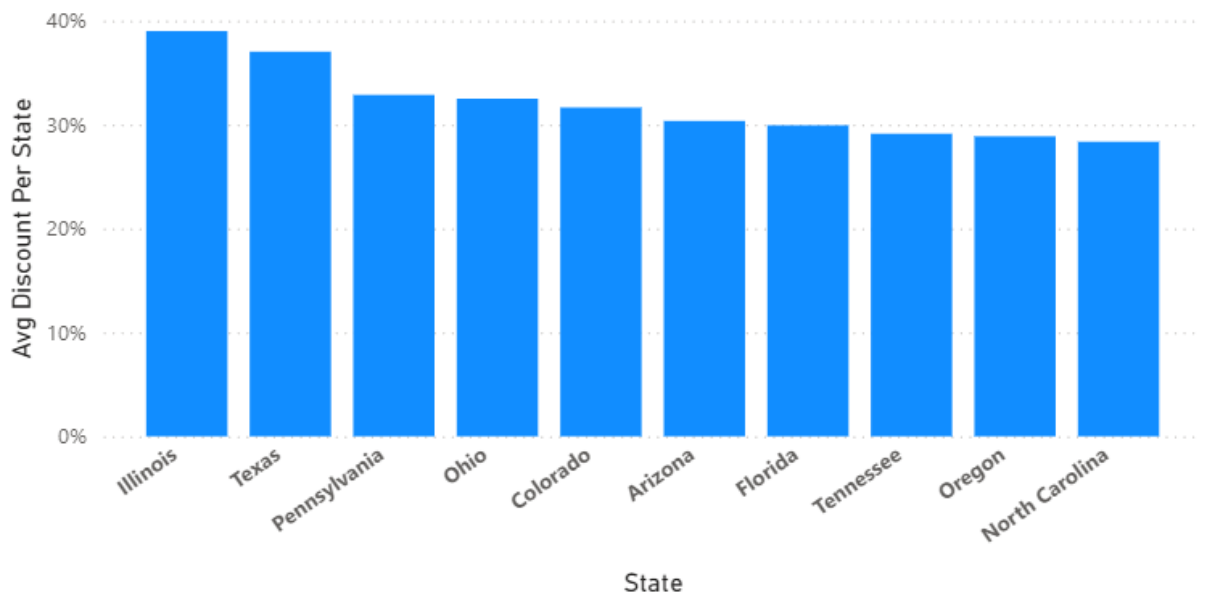
2. Discounts affecting profitability of products

Details :

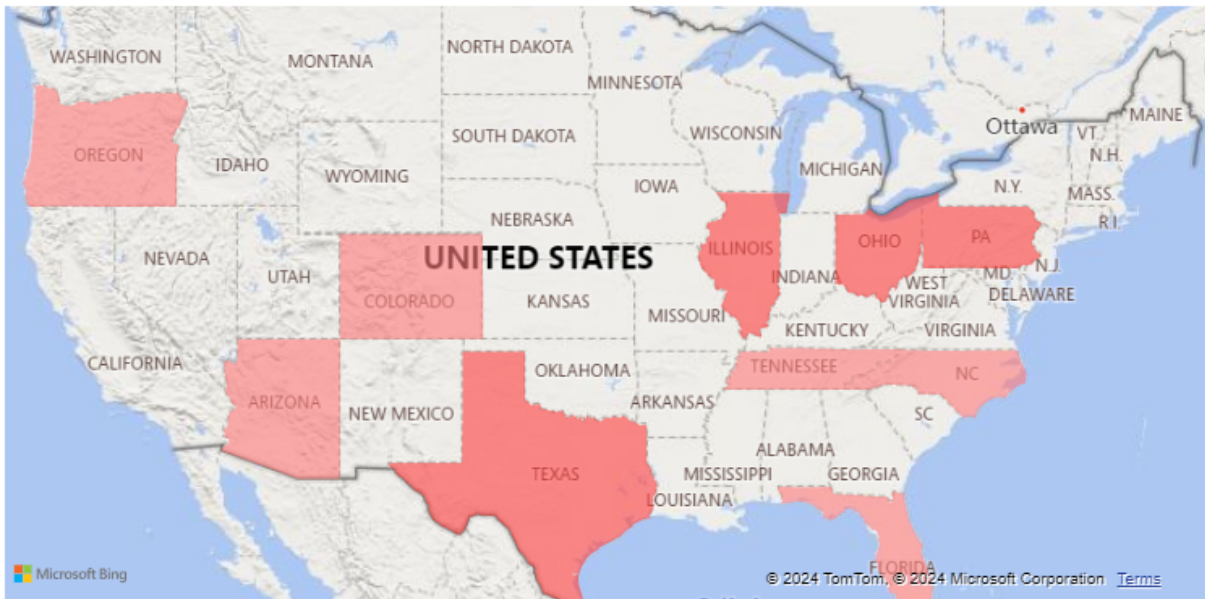
The analysis also revealed that the average discount is high in certain states, leading to negative profits. States like Illinois (39% average discount), Texas (37.02% as an Average Discount) have the highest profit losses.

Visuals :

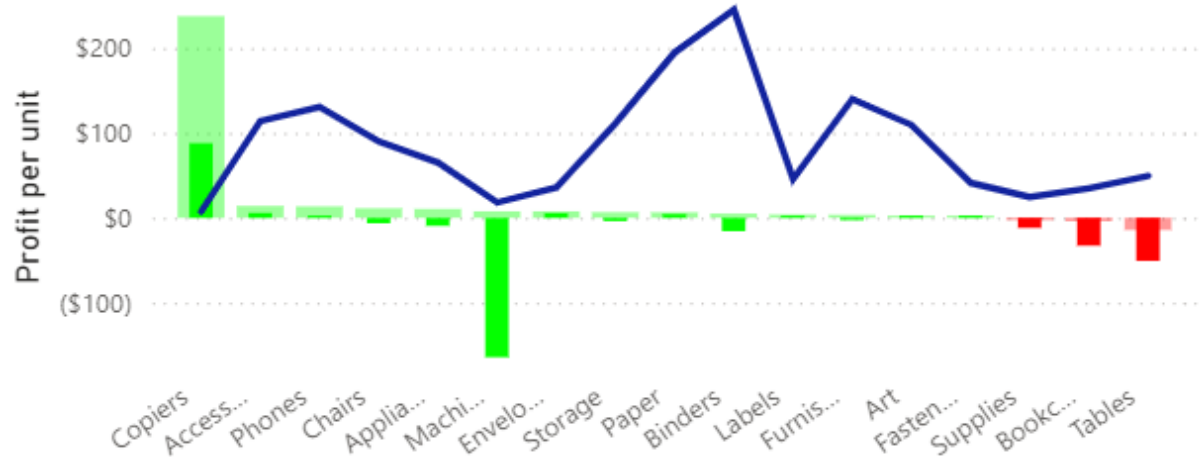
Average Discount By State



Sum of Profit by State



Profit per unit and Quantity by Sub-Category



Analysis :

Excessive discounting in these states resulted in negative profit, likely due to competitive pressure or promotional strategies.

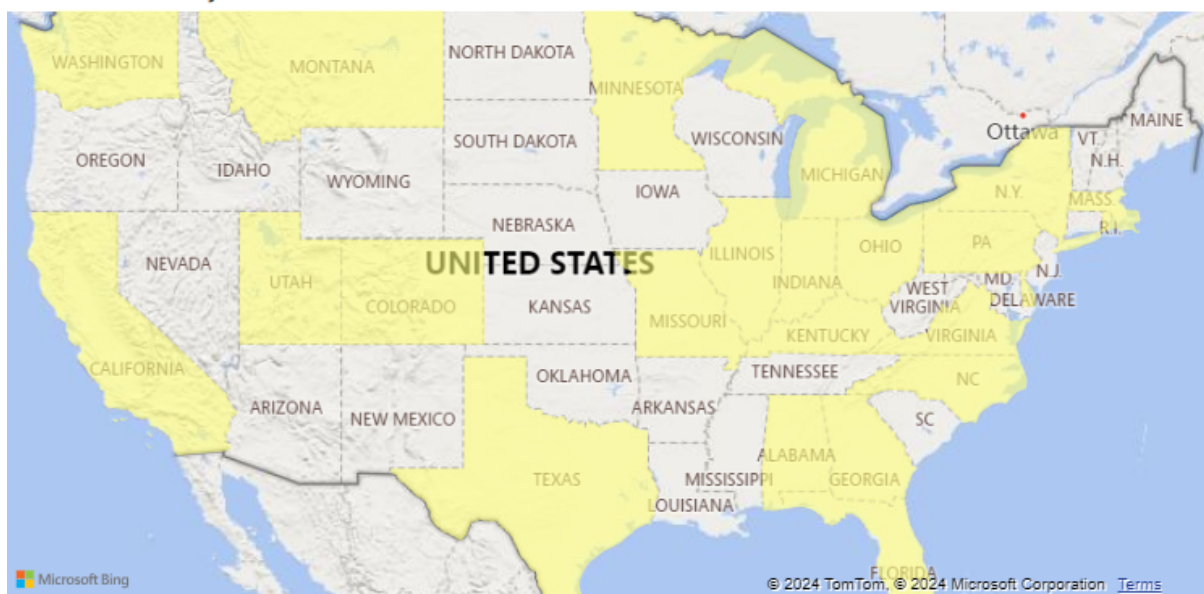
3. Products that need more marketing

Details :

The most profitable product is 'Copiers', despite having one of the lowest quantities sold by the company and being absent from multiple states.

Visuals :

Sum of Profit by State



Analysis :

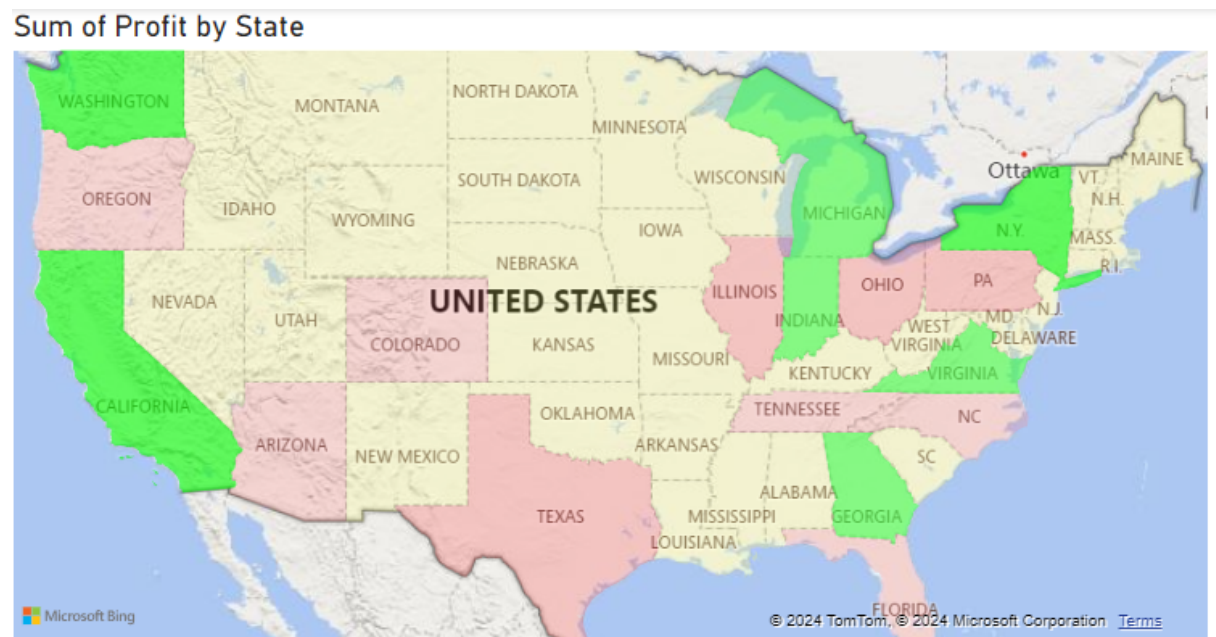
Some products, while profitable, have lower sales volumes and could benefit from increased marketing efforts.

4. States Governing the most revenue

Details:

Certain states are consistently generating high revenue. For example, California, New York and Washington are leading in sales and profit across most categories.

Visuals :





Analysis :

These states have high population densities and strong economic conditions, making them key markets for targeting sales strategies.

Recommendations

For unprofitable products

- Re-evaluate the pricing strategy and discount policies for the unprofitable products in question.
- Conduct a detailed cost analysis to identify areas where production costs more and can be reduced without compromising quality.

For High Discounts in Certain States

- Review and revise discount policies in states like California and Texas to ensure discounts are not eroding profitability.

For Marketing Efforts

- Increase marketing efforts for with high-margin, low-sales products like 'Copiers'.
- Focus marketing campaigns in high-revenue states like California and New York to further boost sales.

Conclusion

The analysis identified two main issues: unprofitable products and excessive discounts in certain states. Addressing these issues can significantly improve overall profitability.

Additionally, increasing marketing efforts for specific products and focusing on high-revenue states can further enhance business performance.