Project Title: Retail Business Performance & Profitability Analysis
Author: Sanjay S
Date: 18/10/2025

Project Objective

The goal of this project is to analyze retail transaction data to identify categories and sub-categories that negatively impact profitability. The insights will support inventory optimization, seasonal sales understanding, and strategic planning to improve overall business performance and profitability.

Dataset Description

The dataset used in this project is the Superstore Sales dataset, sourced from Kaggle. It contains transactional-level data including sales, profit, product categories, sub-categories, regions, and order dates. The data consists of approximately [insert number] records and includes key columns such as Product Category, Sub-Category, Sales, Profit, Quantity, Region, and Order Date.

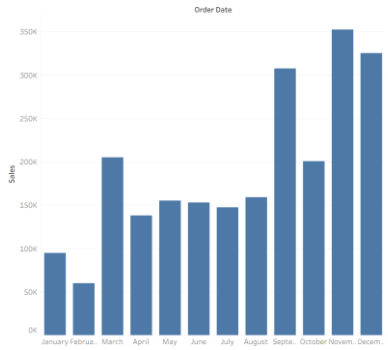
Key Findings

- Certain product categories, such as Furniture, exhibit lower profit margins and contribute to profit drains.
- Sub-category analysis indicates some slow-moving items that disproportionately affect inventory costs.
- Seasonal sales trends highlight peak periods in months like November and December.
- Region-wise analysis reveals geographic areas with higher sales but varying profitability.

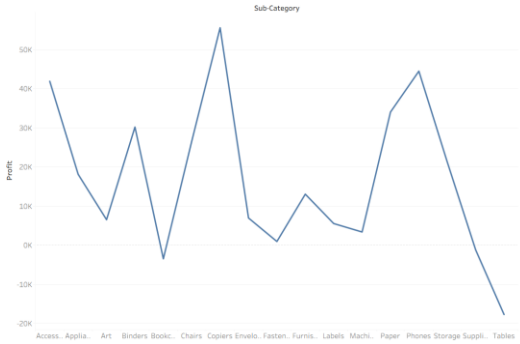
Visual Insights

- **Profit by Product Category:** Bar chart showing total profit per category, highlighting the most and least profitable segments.

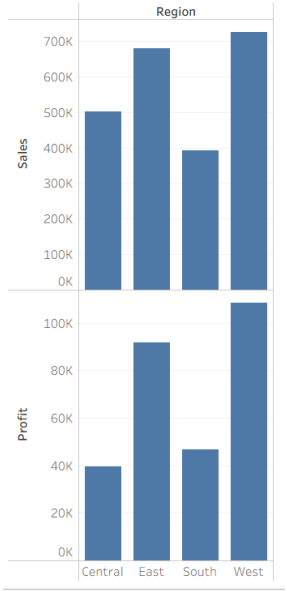
- **Sales Trend Over Time:** Line graph depicting monthly sales trends, emphasizing seasonal fluctuations.



- **Profit Margin by Sub-Category:** Heatmap visualizing profit margins across sub-categories to identify underperforming products.



- **Region-wise Sales and Profit:** Map illustrating sales and profitability variation across different regions.



Recommendations

- Focus on promoting high-profit categories such as Technology while re-evaluating inventory and pricing strategies for lower-profit categories like Furniture.
- Implement targeted discounts or clearance for slow-moving sub-categories to reduce inventory costs.
- Optimize operational plans around identified seasonal peaks to maximize sales opportunities.
- Consider geographic-specific marketing campaigns to improve profitability in underperforming regions.

Conclusion

This comprehensive analysis using SQL, Python, and visualization tools has identified crucial factors impacting retail profitability with actionable insights. Implementing these recommendations can foster more efficient inventory management, better marketing focus, and enhanced overall performance. Future work could extend to dynamic dashboards for real-time monitoring to continually guide business strategy.