

Retail Business Performance & Profitability Analysis

Domain: Business Intelligence

Tools Used: SQL, Python (Pandas, Seaborn, Matplotlib), Tableau

1. Introduction

In today’s competitive retail environment, identifying profitable product categories and optimizing inventory turnover is vital. This project focuses on analyzing retail sales data to derive actionable insights into low-performing categories, stock inefficiencies, and seasonal demand patterns.

2. Abstract

The project leverages transactional retail data to:

- Discover profit-draining sub-categories
- Correlate inventory behavior with profitability
- Identify seasonal trends in customer purchases

Using SQL for logic structuring, Python for in-depth data analysis and visualization, and Tableau for building interactive dashboards, the goal was to equip decision-makers with clear, data-driven recommendations.

3. Tools Used

Tool	Purpose
SQL	Logical queries for profit analysis
Python (pandas, seaborn, matplotlib)	Data cleaning, transformation, correlation
Tableau	Visual dashboards with filters

4. Steps Involved in Building the Project

1. Data Loading and Cleaning:
 - Loaded the Sample Superstore dataset and removed null values.
 - Formatted dates and extracted year/month components.
2. Profitability Calculation:
 - Calculated Profit Margin = Profit / Sales.
 - Grouped by Category & Sub-Category to detect underperforming segments.
3. Correlation Analysis:
 - Investigated relationship between Quantity and Profit Margin.
4. Seasonal Sales Trend Analysis:
 - Created monthly revenue trends across years.
5. Dashboard & Export:

- Exported cleaned dataset to Tableau.
- Built dashboard with filters for region, category, and season.

5. Conclusion

- Tables, Bookcases, and Supplies showed low profitability.
- High quantity sold does not guarantee high profits (weak correlation).
- Seasonal trends peak during November–December (holiday season).
- Retailers can focus on low-margin and slow-moving products for margin optimization.

This analysis serves as a foundational tool for strategic retail decisions, inventory planning, and marketing alignment.