Retail Business Performance & Profitability Analysis

Introduction

In today's competitive retail landscape, data-driven decision-making is essential to improve profitability and reduce inefficiencies. This project focuses on analyzing historical retail sales data to uncover underperforming product categories, understand regional performance, and suggest data-backed improvements for business growth.

Abstract

This project uses the Superstore sales dataset to explore product, sales, and regional performance. Data cleaning and transformation were performed using Python (Pandas), while Power BI was used to build an interactive dashboard. Key insights such as profit-draining categories, high-performing regions, and seasonal sales trends were derived. These findings aim to assist in optimizing inventory, pricing, and promotional strategies.

Tools Used

- Python (Pandas) - Data cleaning and preprocessing
- Power BI - Visualization and dashboard creation
- Jupyter Notebook - For Python scripting and analysis

Steps Involved in Building the Project

1. Dataset Selection: Chose the Superstore dataset from Kaggle containing order-level sales data.
2. Data Cleaning (Python):
   - Converted date columns (Order Date, Ship Date) to YYYY-MM-DD format
   - Removed missing and duplicate records
   - Ensured correct data types
3. Data Analysis:
   - Analyzed profit by category, sub-category, and region
   - Identified loss-making product segments
   - Calculated profit margins and average shipping time
4. Dashboard Creation (Power BI):

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- Built interactive visuals including:
  - Profit by Category/Sub-Category
  - Sales vs Profit Scatter
  - Monthly Sales Trend
  - Top 10 Products by Profit
  - KPI Cards: Total Sales, Profit, Margin
- Added page navigation and slicers (Region, Category, Segment)

Conclusion

The project successfully delivered actionable insights into retail profitability. Key product categories like Binders and Tables were found to be consistently unprofitable despite decent sales. West and Central regions emerged as top performers. Using visual storytelling, the dashboard empowers business users to make informed decisions. This project enhanced my skills in data analysis, visualization, and building end-to-end analytics solutions.