Project Summary: Superstore Sales & Profit Analysis

Objective

The primary goal of this project is to analyze the Superstore dataset to uncover trends and insights related to sales and profitability. By examining customer orders, product categories, geographic regions, and time-based patterns, the analysis aims to support strategic decision-making and improve business performance.

Dataset Overview

- Source: Kaggle's Superstore dataset

- Size: 9,994 records, 21 columns

- Key fields: Order Date, Ship Date, Customer Segment, Product Category, Sales, Profit, Region, City

Methodology

1. **Data Preprocessing**

   o Converted date fields to datetime format

   o Extracted year, month, and day-of-week features

   o Checked for duplicates and missing values (none found)

   o Identified and removed outliers using Z-score method

2. **Exploratory Data Analysis (EDA)**

   o Visualized distributions of sales and profit

   o Analyzed trends over time (monthly and yearly)

   o Compared performance across customer segments, categories, sub-categories, cities, and regions

Key Findings

- **Time Trends**

    - Sales and profit generally increase from January to December

    - A notable dip in October sales suggests a potential anomaly

- **Customer Segments**

    - Consumer segment has the highest sales

    - Home Office segment shows the highest profit margin

- **Product Categories**

    - Sales are evenly distributed across Furniture, Office Supplies, and Technology

    - Office Supplies yield the highest profit; Furniture the lowest

- **Sub-Category Profitability**

    - Highly profitable: Labels, Paper, Envelopes

    - Moderately profitable: Chairs, Phones, Machines

    - Unprofitable: Tables, Bookcases, Supplies

- **Geographic Insights**

    - Top cities by sales: New York City, Los Angeles, San Francisco

    - Top cities by profit: New York City, Los Angeles, Seattle

    - Cities like Philadelphia and Chicago show negative profit despite high sales

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Business Implications

- Focus marketing and inventory efforts on high-margin sub-categories and regions with strong profitability

- Investigate underperforming categories and cities to identify operational inefficiencies

- Consider seasonal promotions or interventions to address October sales drop

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Conclusion

The Superstore Sales & Profit Analysis provides actionable insights into customer behavior, product performance, and regional trends. These findings can inform strategic planning, optimize resource allocation, and enhance profitability across the business.