

E-Commerce Sales Analysis Report

Comprehensive Sales & Profit Analysis of a Retail Superstore

Project Overview



Goal

Identify key trends and opportunities to improve sales and profitability



Tools

Python, Pandas for data manipulation, Plotly for interactive visualizations



Approach

Data Cleaning → Aggregation → Visualization → Insight Generation



Analysis Objectives

01

Monthly Sales Trends

Calculate and identify highest and lowest performing months

02

Category Performance

Analyze sales by product category and sub-category

03

Profit Analysis

Determine peak profit months and patterns

04

Customer Segments

Examine sales and profit by segment

05

Profitability Ratio

Calculate and interpret sales-to-profit ratio

Key Performance Metrics

6.5

Sales-to-Profit Ratio

Sales per \$1 profit -
moderate profitability

Dec

Peak Sales Month

December 2017
recorded highest
monthly sales

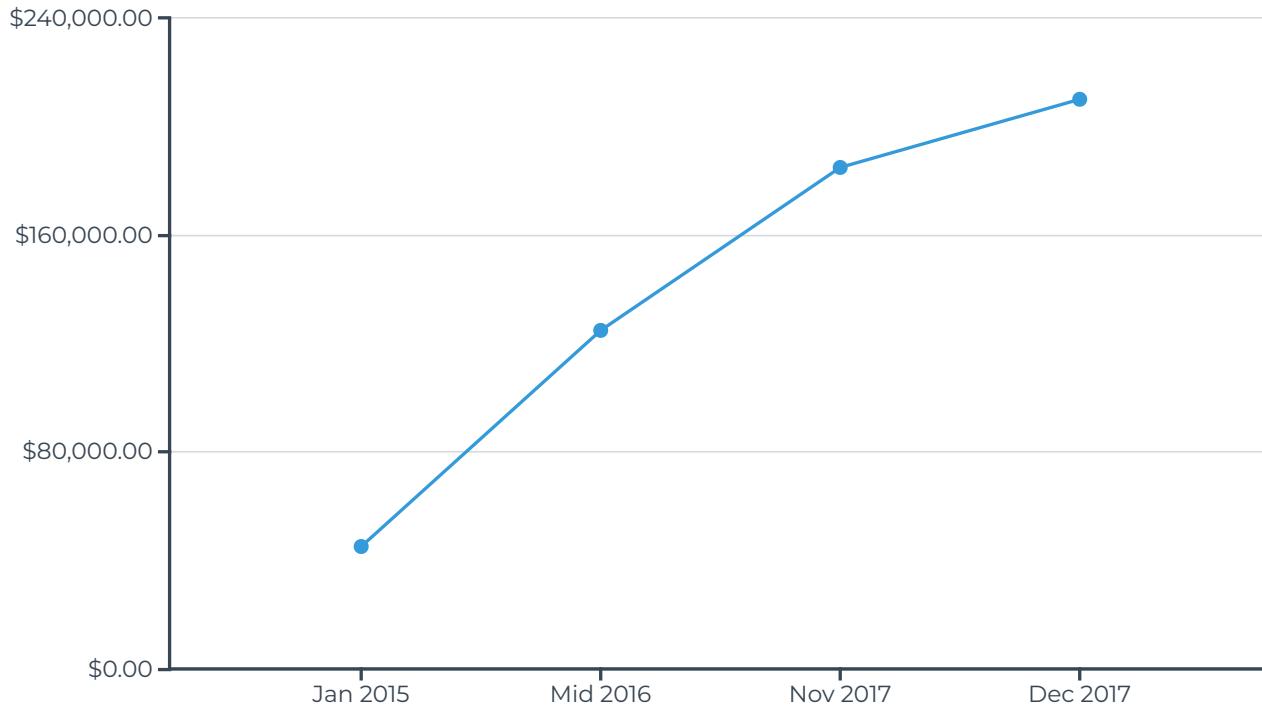
Nov

Highest Profit Month

November 2017
delivered maximum
profit



Monthly Sales Performance



Seasonal Trends

December 2017: Highest sales month

January 2015: Lowest sales month

Strong year-end performance indicates seasonal demand patterns



Category Performance Analysis

Technology

Top Category

- Highest sales contributor
- Phones lead sub-category
- Strong profit margins

Furniture

Mid-Range Performer

- Chairs top sub-category
- Steady sales volume
- Moderate profitability

Office Supplies

Lowest Category

- Weakest sales performance
- Fasteners and Labels lag
- Needs strategic review



Sub-Category Winners & Losers

Top Performers

- 1 **Phones**

Highest sales sub-category

- 2 **Chairs**

Strong furniture segment leader

Underperformers

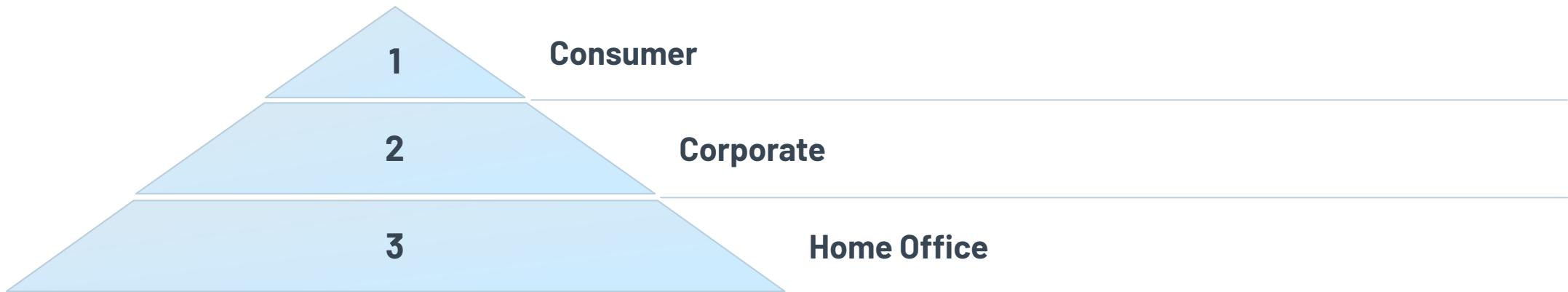
- 1 **Fasteners**

Lowest sales contributor

- 2 **Labels**

Minimal revenue generation

Customer Segment Insights



The **Consumer segment** accounts for the largest share of both sales and profit, representing the primary revenue driver for the superstore.

Strategic Recommendations



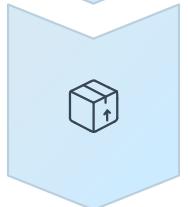
Seasonal Focus

Leverage November-December demand with targeted promotions



Pricing Review

Re-evaluate Office Supplies cost structure and margins



Product Bundles

Promote Phones and Chairs through strategic discounts



Customer Loyalty

Enhance Consumer segment engagement with rewards programs



Predictive Analytics

Use Python trend analysis for sales forecasting



Conclusion

Python-based analysis using Pandas and Plotly provided actionable insights into sales and profit performance.

Data-Driven Decisions

Category-level and monthly trends enable strategic planning

Revenue Enhancement

Targeted actions to improve sales and control costs

Business Growth

Analytics power drives efficiency and profitability