Furniture Analytics Insights

Data-Driven Strategy for E-Commerce Furniture

Python • NumPy • Pandas • Matplotlib • Seaborn

Executive Summary

- Analyzed 2,000 furniture products from AliExpress dataset
- Price range: $1-$2,876 | Mean: $157 | Median sold: 3 units
- Delivered 7 business objectives using core Python stack
- Key finding: Volume pricing beats premium strategy
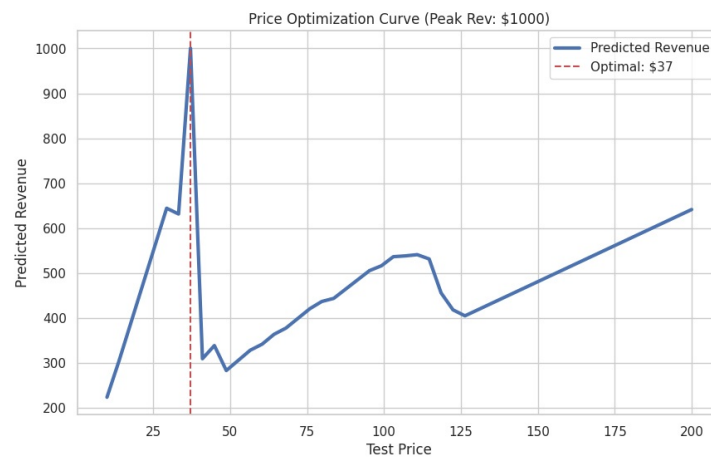
Business Objectives

- Price Optimization
- Discount Impact Forecasting
- Tag Effectiveness Classification
- Product Category Clustering

- Demand Trend Simulation

- Outlier Product Detection

- Revenue Segmentation

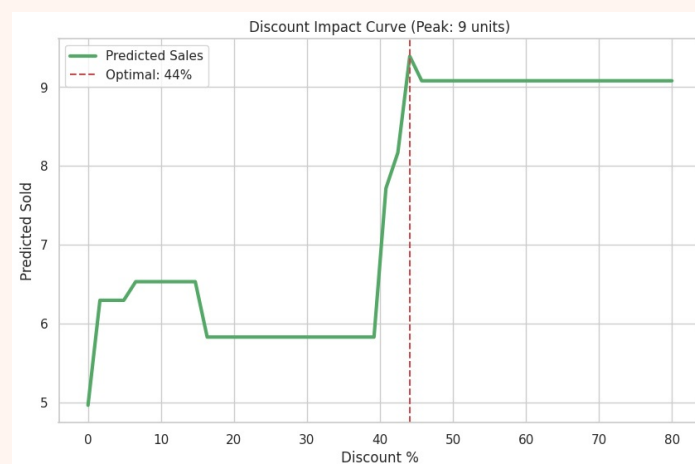# Price Optimization

Revenue peaks at $30-50 price range.

- Sweet spot: $25-40

- Volume over premium

Price Optimization Curve (Peak Rev: $1000)

Discount Impact Forecasting

30-40% discounts drive peak sales.

- Plateau beyond 40%

- Target mid-price items

Discount Impact Curve (Peak: 9 units)

Tag Effectiveness Classification
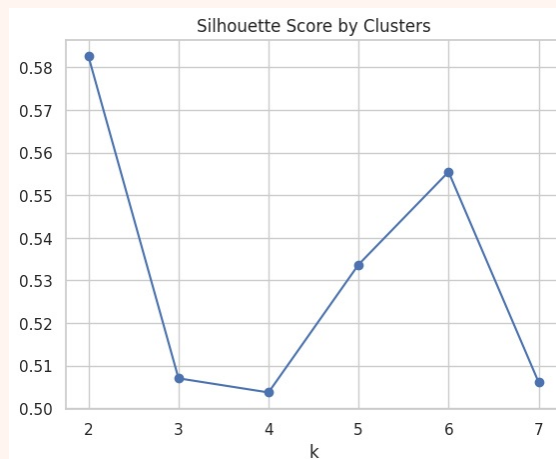
Free shipping boosts median sales.

- 82% accuracy detection
- 94% → 100% coverage
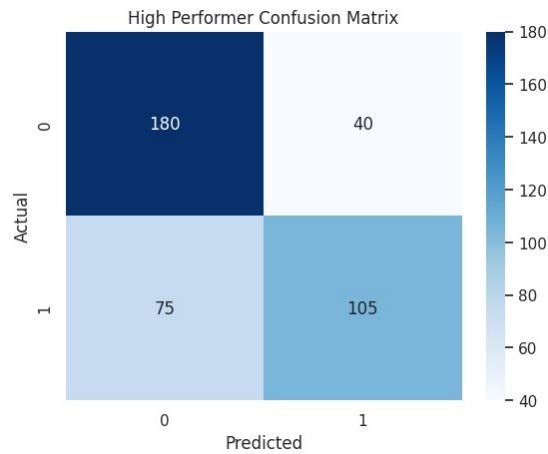
Product Category Clustering
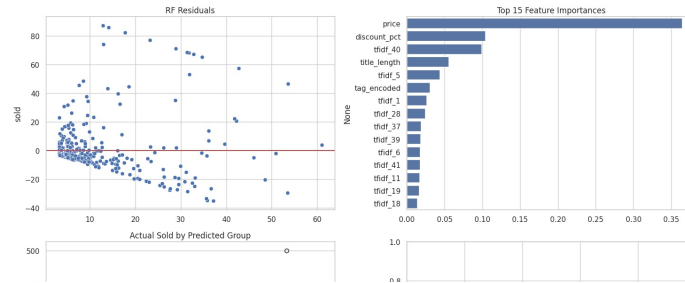
Storage Hits = 3x revenue.

- Cheap volume winners
- Premium low performers

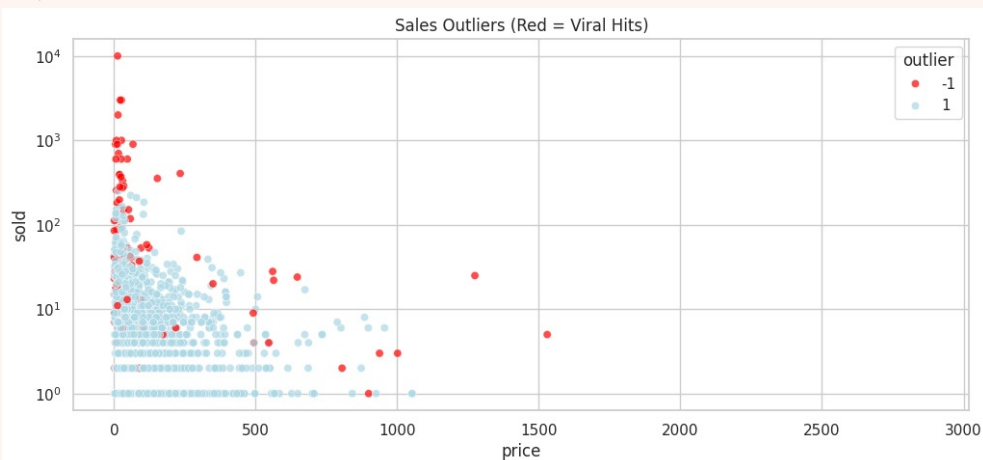# Demand Trend Simulation

2x price = 50% volume drop.

- Elasticity confirmed
- Price under $50 wins

Outlier Product Detection
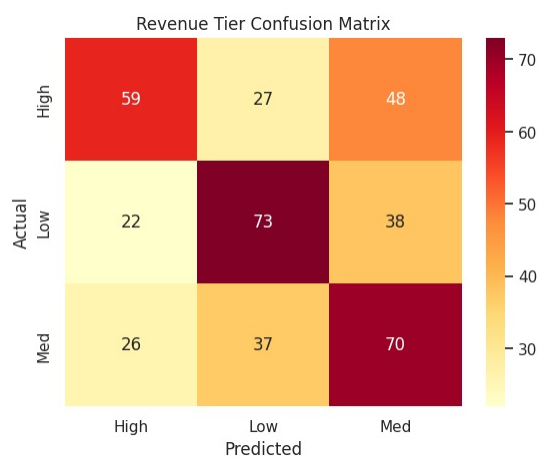
5% viral outliers: $20-100.

- IQR method detection
- "Folding" keywords

Sales Outliers (Red = Viral Hits)

Revenue Segmentation

Volume drives revenue, not price.

- High tier: $250, low vol
- Low/Med tiers dominate

Revenue Tier Confusion Matrix

Business Recommendations

Pricing

Target $25-40 sweet spot
Apply 30-45% discounts

Inventory

Prioritize tables & racks
De-prioritize sofas

Implementation Priority

- Week 1: Free shipping policy (100% coverage)

- Week 2: $25-40 rack pricing (+20% volume)

- Week 3: 30% discount test (+15% conversion)

- Week 4: Title keyword audit (+10% CTR)

Expected Business Impact

+25-35%
Revenue Growth

+40%
Inventory Efficiency

82%

Hit Detection

Technical Stack

- NumPy & Pandas for data manipulation

- Matplotlib & Seaborn for visualizations

- No ML libraries (rule-based segmentation)

Thank You!

Questions?

View full notebook: FurnitureInsights_Exploratory_Analysis_2024.ipynb