

Project: Retail Sales Analysis

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Tools: Python, SQL, Power BI

Dataset: *Sales Data.csv* (Kaggle – <https://www.kaggle.com/datasets/beekiran/sales-data-analysis/data>)

Objective

Identify:

- Best-selling products
- Top-performing cities
- Pricing patterns
- Seasonal demand behavior
- Quick-win opportunities to grow revenue and optimize product mix

Top KPIs

- Total Revenue: \$34.49M
- Total Quantity Sold: \$209K
- Total Orders: \$178K
- Average Order Value (AOV): \$193.30
- Top Product by Revenue: MacBook Pro Laptop
- Top City by Revenue: San Francisco

Key Insights

1. Product revenue concentration:

The top 3 products (MacBook Pro, iPhone, ThinkPad Laptop) contribute a significant share of overall revenue. Prioritize procurement, visibility, and merchandising efforts around these high-yield SKUs.

2. Geographic performance:

San Francisco and Los Angeles lead revenue generation. Mid-tier cities such as Boston and Atlanta have improvement potential via targeted promotions.

3. High-value SKU price sensitivity:

As price increases, order volume declines sharply. Financing options, bundle discounts, or seasonal offers could improve conversion on premium products.

4. Cross-sell opportunity:

Customers purchasing multiple products show higher AOV. Recommendation models or automated product bundles can increase basket size.

5. Seasonality trend:

Monthly sales gradually increase between November to December. This suggests seasonality. Promotional campaigns should target weak months for improvement and strong months for more sales.

6. Sales patterns by hour:

Peak transaction volume occurs between 10:00–19:00. Staffing, inventory restocks, and targeted ads should be concentrated within this window.

Recommendations

- Launch a 4-week promotional campaign in mid-performing cities to boost reach.
- Create payment plans or accessory bundles for high-ticket SKUs to remove price friction.
- Implement cross-sell suggestions at checkout for related products.
- Enable a weekly inventory dashboard focused on top SKUs to prevent out-of-stock losses.
- Highlight high-margin accessories during peak shopping hours.

Next Steps

- Build RFM segmentation to target high-value customers with personalized offers.
- Train a demand forecasting model by product-city-month to reduce waste and stockouts.
- Automate Top 10 customer tracking for loyalty and retention.