

Customer Shopping Behavior Analysis

Uncovering insights into spending patterns, preferences, and subscription behavior to guide strategic business decisions.



Project Overview & Dataset Summary

Project Goal

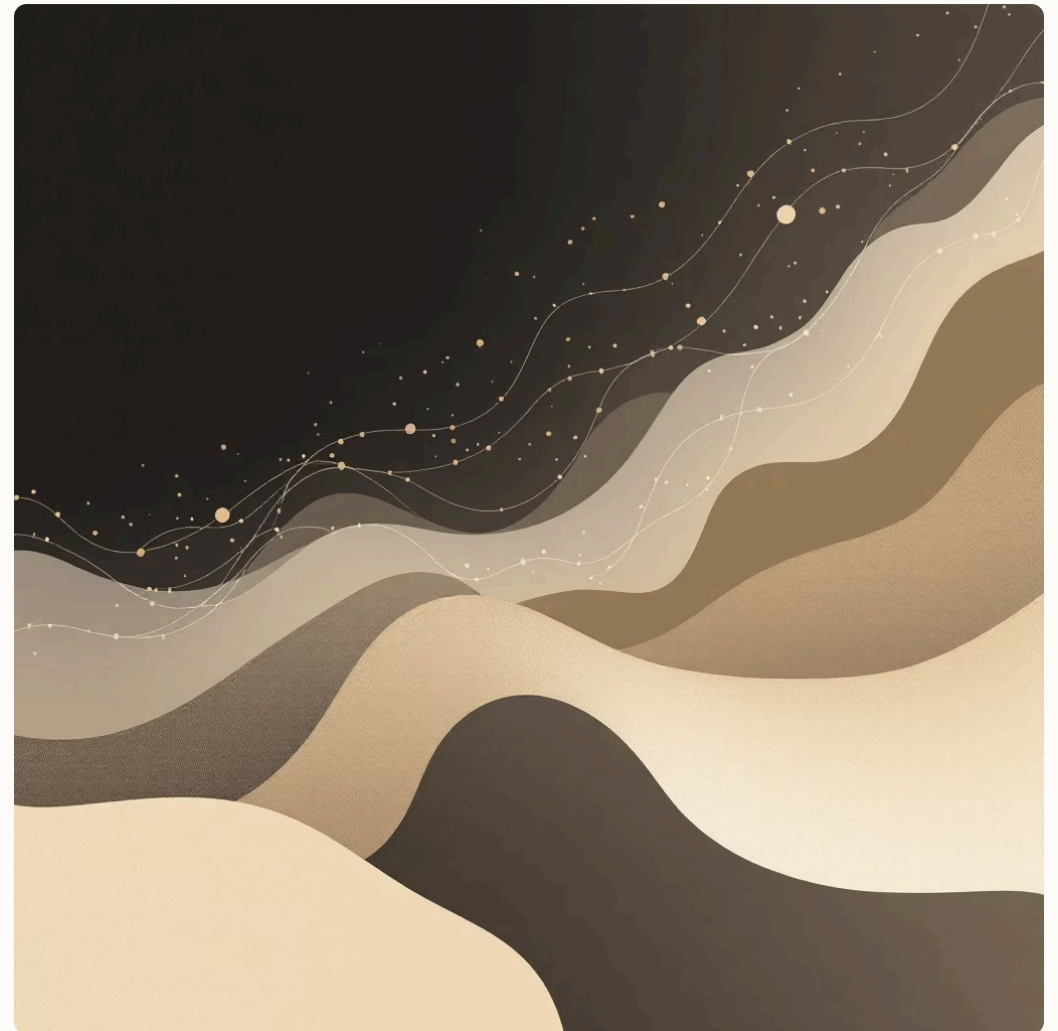
Analyze transactional data to optimize operations and future-proof business strategies.

Key Insights

- Spending patterns
- Customer segments
- Product preferences
- Subscription behavior

Dataset Snapshot

- 3,900 purchase rows
- 18 detailed columns
- Missing data: 37 values in Review Rating



Exploratory Data Analysis (Python)

01

Data Loading & Exploration

Imported dataset with pandas, checked structure and summary statistics.

02

Missing Data Handling

Imputed 'Review Rating' using median by product category.

03

Column Standardization

Renamed columns to 'snake_case' for readability.

04

Feature Engineering

Created 'age_group' and 'purchase_frequency_days'.

05

Data Consistency & Integration

Dropped redundant 'promo_code_used', loaded data to PostgreSQL.

SQL Analysis: Key Business Questions

1

Revenue by Gender

Male: \$157,890, Female: \$75,191

2

High-Spending Discount Users

839 customers spent above average with discounts.

3

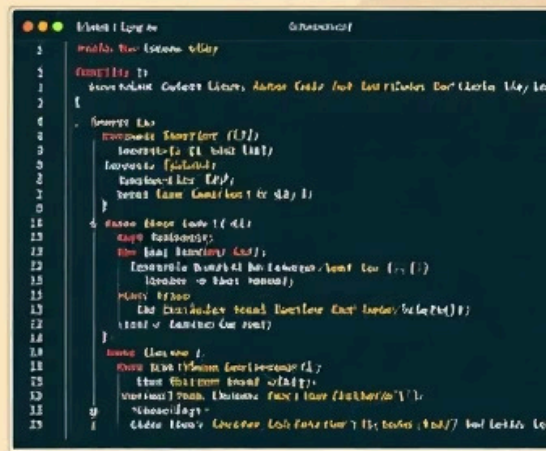
Top 5 Products by Rating

Gloves (3.86), Sandals (3.84), Boots (3.82), Hat (3.80), Skirt (3.78).

4

Shipping Type Comparison

Express avg. \$60.48 vs. Standard avg. \$58.46.



SQL Analysis: Subscription & Discounts

Subscribers vs. Non-Subscribers

Yes	1053	59.49	62645
No	2847	59.87	170436



Discount-Dependent Products

Top 5 products with highest discount rates:

- Hat: 50.00%
- Sneakers: 49.66%
- Coat: 49.07%
- Sweater: 48.17%
- Pants: 47.37%



SQL Analysis: Customer Segmentation & Products

Customer Segmentation

Loyal

3116 Customers

Returning

701 Customers

New

83 Customers

Customer Segmatation







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Repeat Buyers & Subscriptions

Customers with >5 purchases:

- No Subscription: 2518
- Yes Subscription: 958



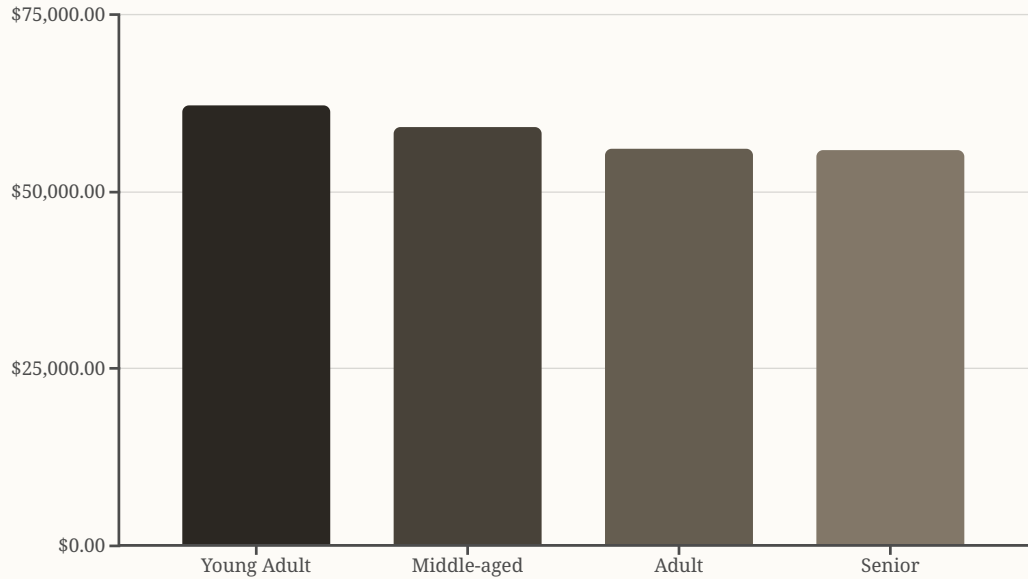
SQL Analysis: Top Products & Revenue by Age

Top Products per Category

- **Accessories:** Jewelry, Sunglasses, Belt
- **Clothing:** Blouse, Pants, Shirt
- **Footwear:** Sandals, Shoes, Sneakers
- **Outerwear:** Jacket, Coat



Revenue by Age Group





Power BI: Interactive Dashboard

Visualizing key metrics and trends for dynamic insights.

Key Metrics

- Customers: 3.9K
- Avg. Purchase: \$59.76
- Avg. Review: 3.75

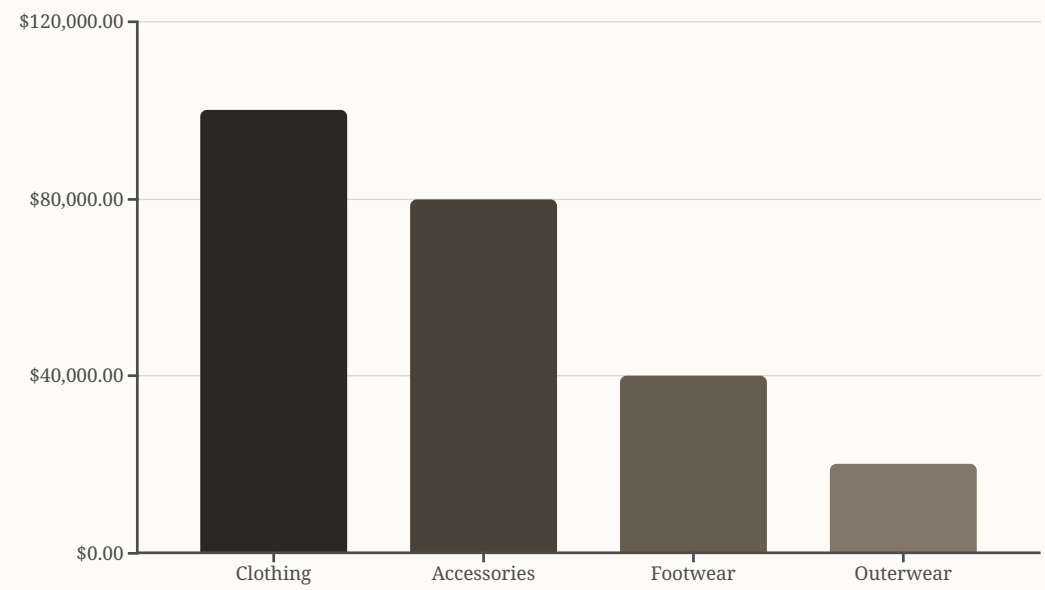
Interactive Filters

- Subscription Status
- Gender
- Category
- Shipping Type

Dashboard Visualizations



% of Customers by Subscription Status



Revenue by Category

Business Recommendations



Boost Subscriptions

Promote exclusive benefits for subscribers.



Customer Loyalty Programs

Reward repeat buyers to foster loyalty.



Review Discount Policy

Balance sales boosts with margin control.



Product Positioning

Highlight top-rated and best-selling products.



Targeted Marketing

Focus on high-revenue age groups and express-shipping users.