

Customer Shopping Behavior Analysis

Uncovering insights from transactional data to guide strategic business decisions.



Project Overview



Analyze 3,900 Purchases

Transactional data across diverse product categories.



Uncover Key Insights

Spending patterns, customer segments, product preferences, and subscription behavior.



Guide Decisions

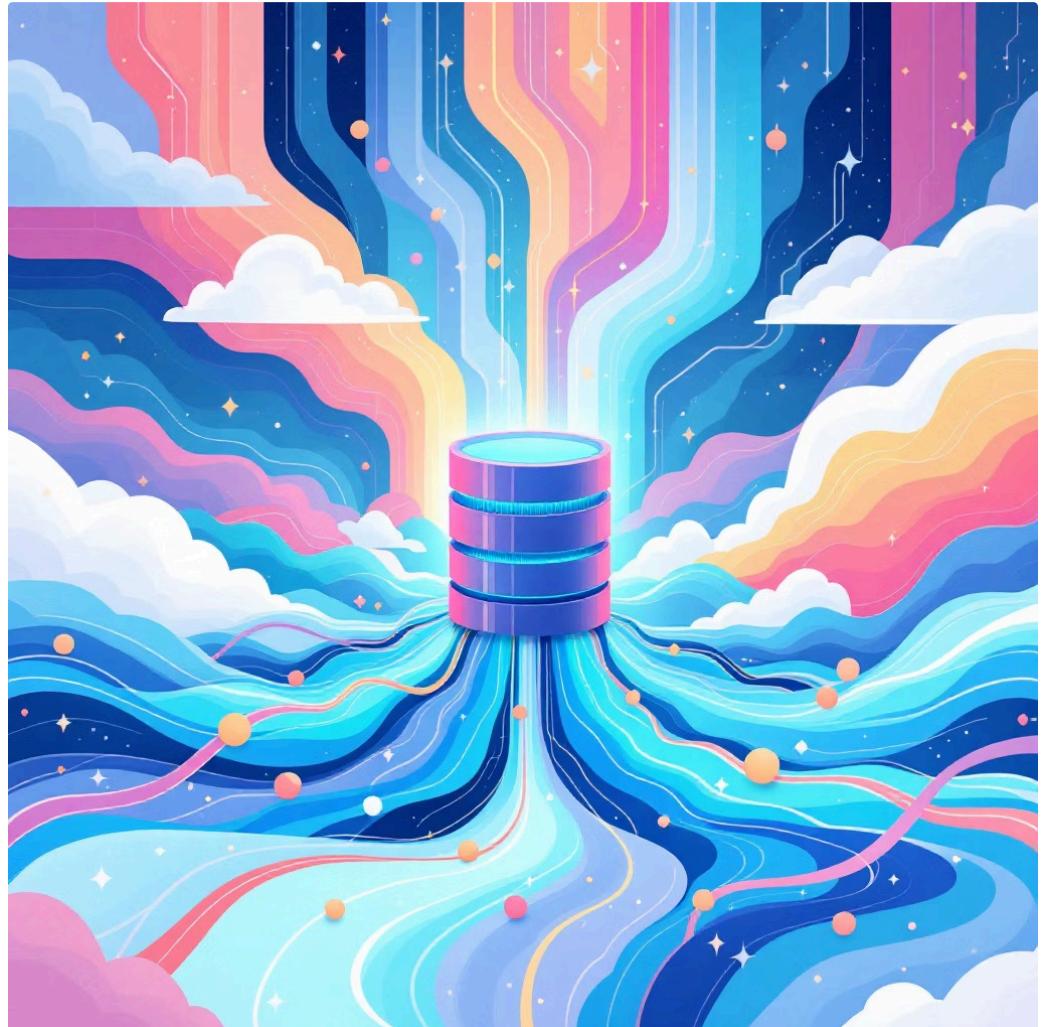
Inform strategic business choices with data-driven findings.

Dataset Summary: Key Features

Rows: 3,900

Columns: 18

- Customer demographics (Age, Gender, Location, Subscription Status)
- Purchase details (Item, Category, Amount, Season, Size, Color)
- Shopping behavior (Discount, Promo Code, Previous Purchases, Frequency, Review Rating, Shipping Type)



Missing Data: 37 values in Review Rating column.

Exploratory Data Analysis in Python

01

Data Loading & Exploration

Imported dataset, checked structure and summary statistics.

02

Missing Data Handling

Imputed missing Review Rating values using median per category.

03

Column Standardization

Renamed columns to snake_case for readability.

04

Feature Engineering

Created age_group and purchase_frequency_days columns.

05

Database Integration

Loaded cleaned data into PostgreSQL for SQL analysis.

Key Business Insights from SQL Analysis

1

Revenue by Gender

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

2

High-Spending Discount Users

Identified customers using discounts but spending above average.

3

Top 5 Products by Rating

Gloves, Sandals, Boots, Hat, Skirt.

4

Shipping Type Comparison

Express average: \$60.48, Standard average: \$58.46.

Subscription & Discount Dynamics

Subscribers vs. Non-Subscribers

Yes	1053	59.49	62645
No	2847	59.87	170436

Discount-Dependent Products

Top 5 products with highest percentage of discounted purchases:

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



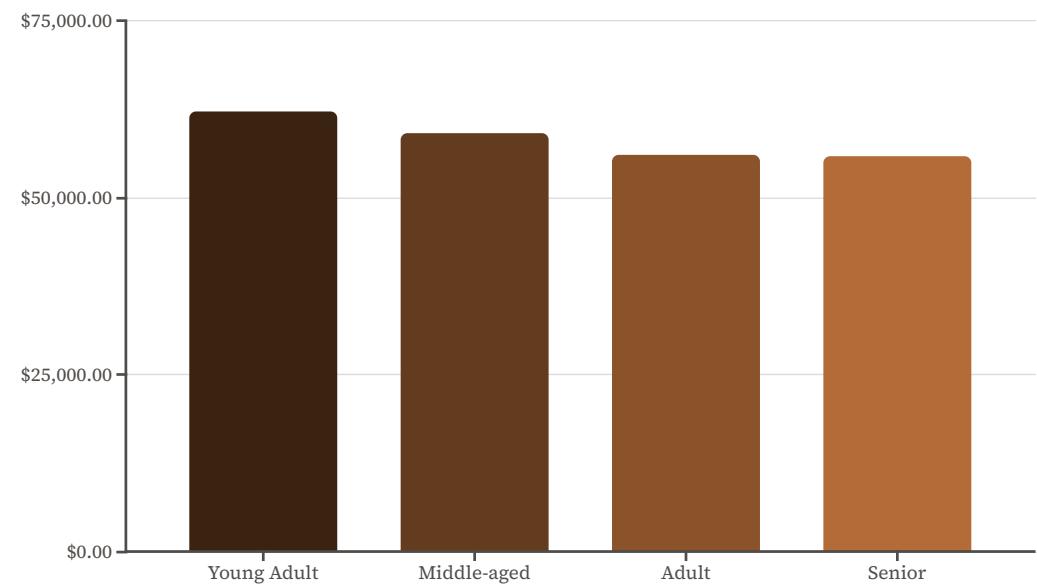
Customer Segmentation & Age Group Revenue

Customer Segments

Loyal	3116
Returning	701
New	83



Revenue by Age Group



Top Products Per Category

Accessories

Jewelry (171), Sunglasses (161), Belt (161)

Clothing

Blouse (171), Pants (171), Shirt (169)

Footwear

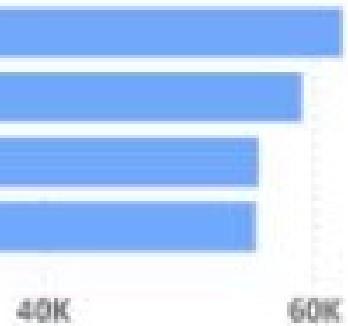
Sandals (160), Shoes (150), Speakers (145)

CUSTOMER BEHAVIOUR DASHBOARD

\$59.76

Average purchase amount

Revenue by category



Sales

Young Adults
Middle-aged
Seniors

Interactive Dashboard in Power BI

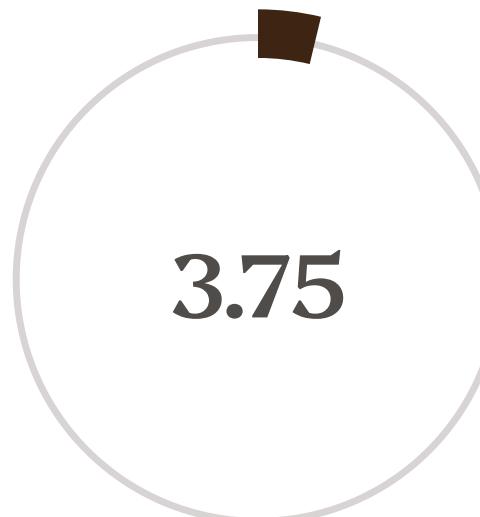
Visualizing customer behavior for actionable insights.



Customers



Avg. Purchase



Avg. Review

Business Recommendations



Boost Subscriptions

Promote exclusive benefits to increase subscriber base.

Customer Loyalty Programs

Reward repeat buyers to foster loyalty and move them to "Loyal" segment.



Review Discount Policy

Balance sales boosts with margin control for sustainable growth.

Targeted Marketing

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