



Customer Shopping Behavior Analysis

Uncovering insights from **3,900 transactions** across product categories, demographics, and purchase patterns.

DATA ANALYTICS

RETAIL INTELLIGENCE

Dataset at a Glance

3,900

Transactions

18

Features

4

Categories

Demographics · Purchase details · Behavior signals · Review ratings



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Data Preparation in Python

1

Load & Explore

`pandas`, `df.info()`, `describe()`

2

Clean & Impute

Median imputation for 37 missing review ratings

3

Engineer Features

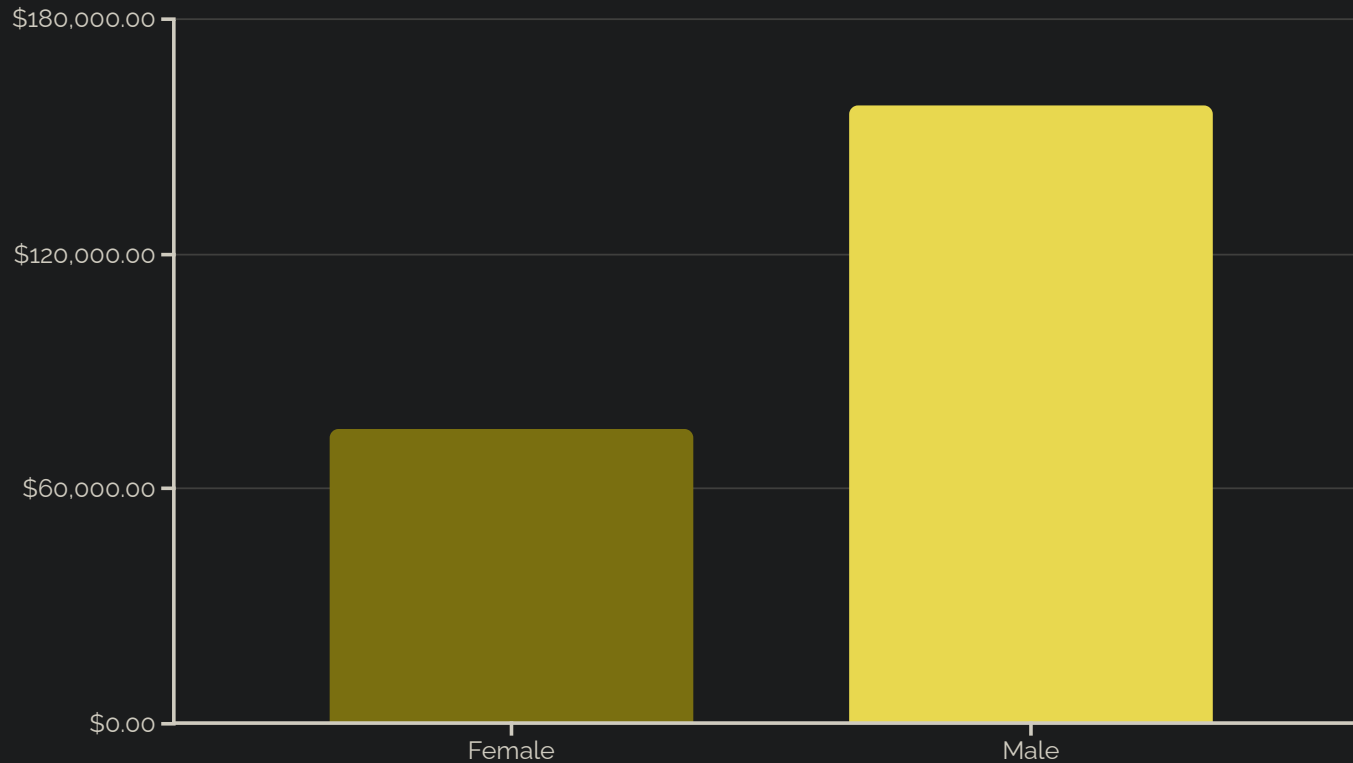
`age_group` bins · `purchase_frequency_days`

4

Load to PostgreSQL

Cleaned DataFrame exported for SQL analysis

Revenue & Spending Insights



Key Findings

- Male customers generate **2× more revenue** than female
- **839 discount users** still spent above average
- Express shipping avg: **\$60.48** vs. Standard: **\$58.46**

Top-Rated Products

 Gloves

Rating: **3.86**

 Sandals

Rating: **3.84**

 Boots

Rating: **3.82**

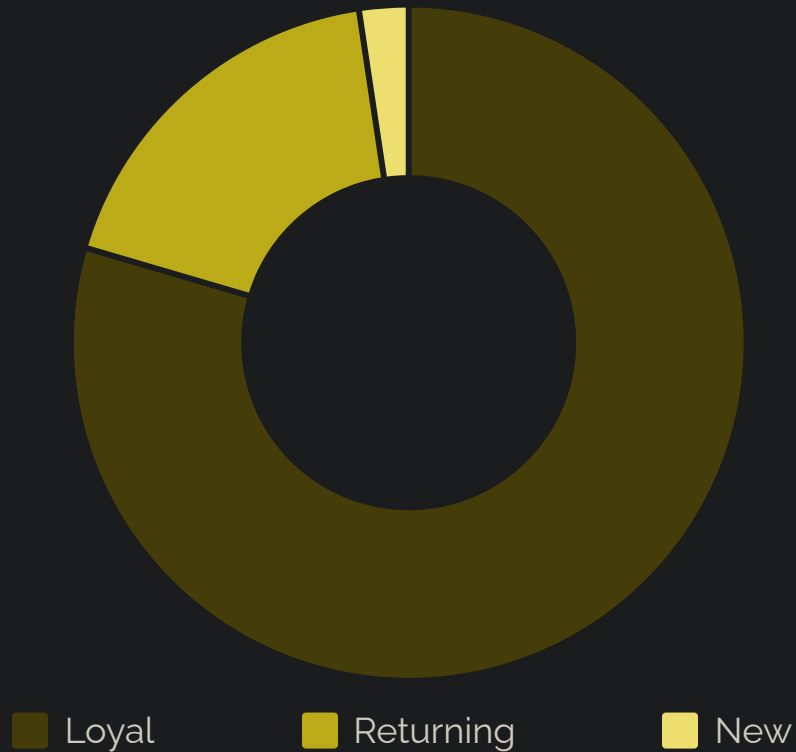
Hat

Rating: **3.80**

Skirt

Rating: **3.78**

Customer Segmentation



Loyalty Dominates

80% of customers are **Loyal** — a strong retention foundation.

Repeat buyers (>5 purchases): **958** subscribed vs. **2,518** non-subscribed.

Subscription vs. Non-Subscription

Subscribers

1,053 customers · **27%**

Avg spend: \$59.49 · Revenue: \$62,645

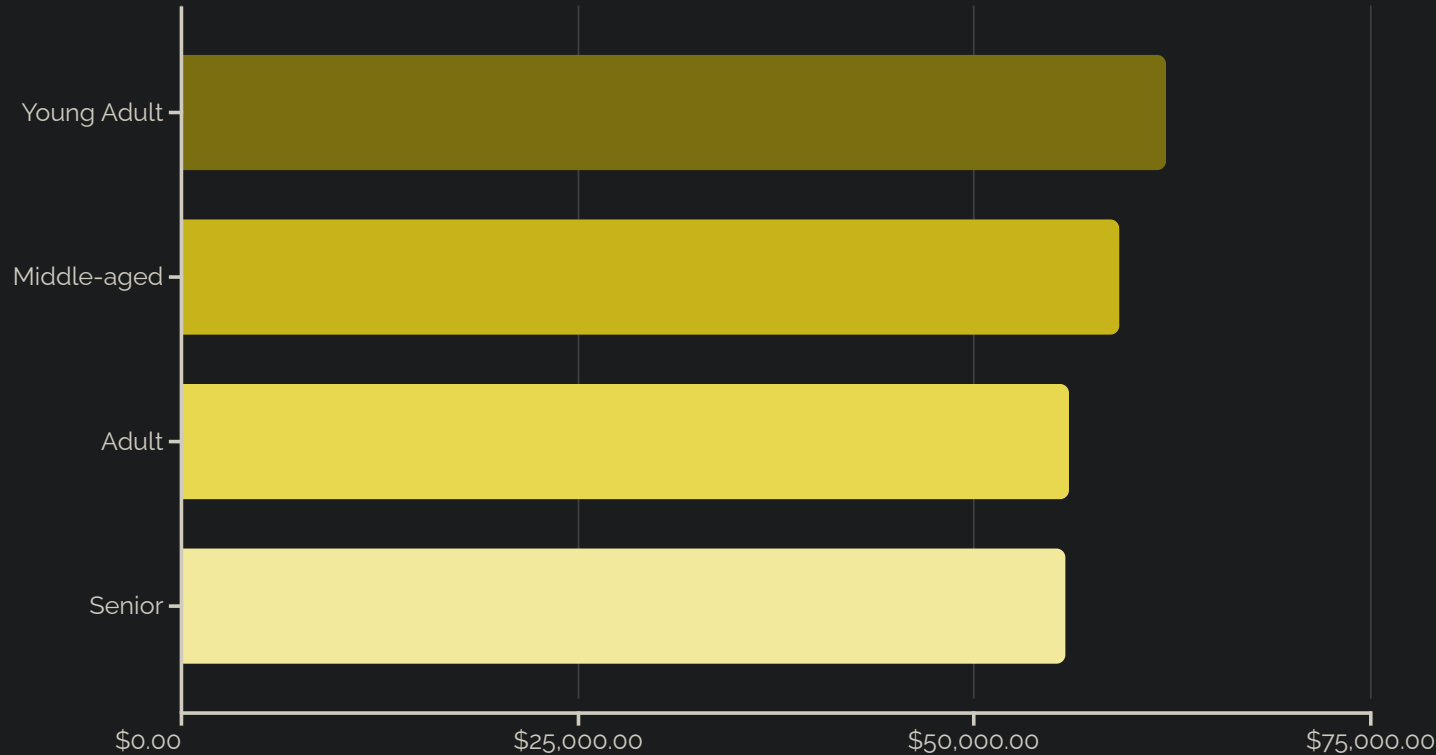
Non-Subscribers

2,847 customers · **73%**

Avg spend: \$59.87 · Revenue: \$170,436

- ❑ Spend per customer is nearly equal — **volume**, not loyalty perks, drives the revenue gap.

Revenue by Age Group



Young Adults Lead

Young Adults contribute the highest revenue at **\$62,143**.

Revenue is relatively balanced across all age groups — no segment should be ignored.



Power BI Dashboard

3.9K

Customers

\$59.76

Avg Purchase

3.75

Avg Rating



Business Recommendations

→ Boost Subscriptions

Promote exclusive subscriber benefits

→ Loyalty Programs

Reward repeat buyers to grow the Loyal segment

→ Review Discount Policy

Balance sales boosts with margin control

→ Targeted Marketing

Focus on Young Adults & express-shipping users