

Customer Behavior & Revenue Optimization Analysis

A deep dive into the shopping patterns of 3,900 customers to unlock growth through data-driven insights.



Decoding the Modern Shopper

- Demographics: Age, Gender, Location
- Status: Subscription & Loyalty
- Habits: Seasonality & Shipping





Dataset at a Glance

3.9K

Total Customers
Comprehensive rows
of unique shopper
data.

18

Key Features
Variables including
purchase amount and
ratings.

37

Missing Values
Identified and
resolved in Review
Ratings.

DATA PREPARATION

Cleaning with Python

Ensuring data integrity through advanced preprocessing techniques.

Imputation

Filled missing ratings using category-specific medians.

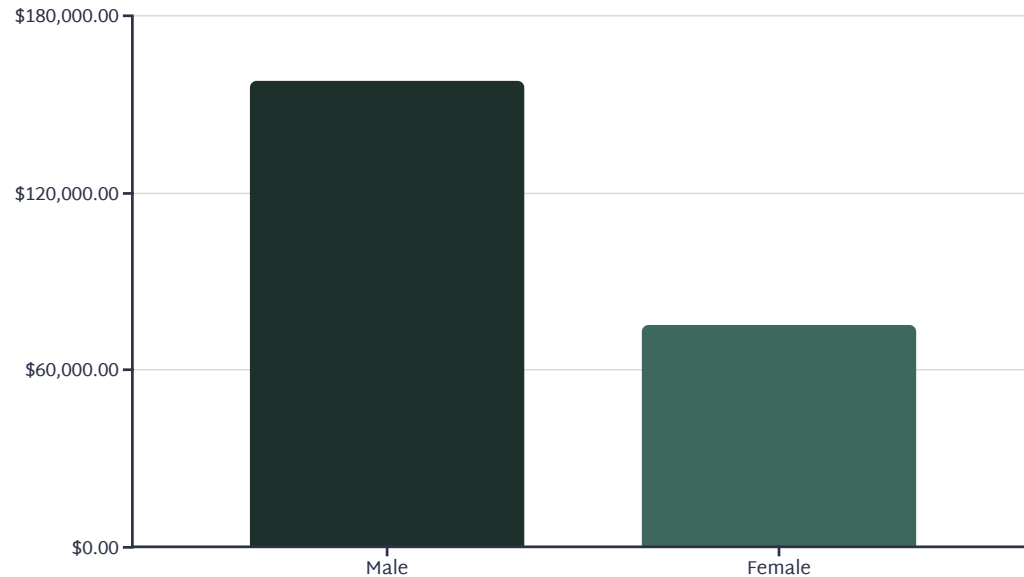
Normalization

Renamed columns for SQL compatibility (e.g., `purchase_amount`).

Feature Engineering

Created "age_group" to segment Young Adults vs. Adults.

Revenue by Gender & Age



Age Group Contribution

Young Adults and Adults represent the core revenue drivers.

- Adults: \$86,412
- Young Adults: \$64,839
- Seniors: \$47,211

Top Performing Products

Analysis of the highest-rated items and category leaders.



Waterproof Boots

Avg Rating: 4.1



Backpack

Avg Rating: 4.0



Running Shoes

Avg Rating: 4.0

📌 Clothing and Footwear dominate the "Top 3" most purchased items across all categories.

The Subscription Paradox

Comparing behavior between Subscribed and Non-Subscribed users.

Subscribers

Avg Spend: \$59.39

Total: \$62,538

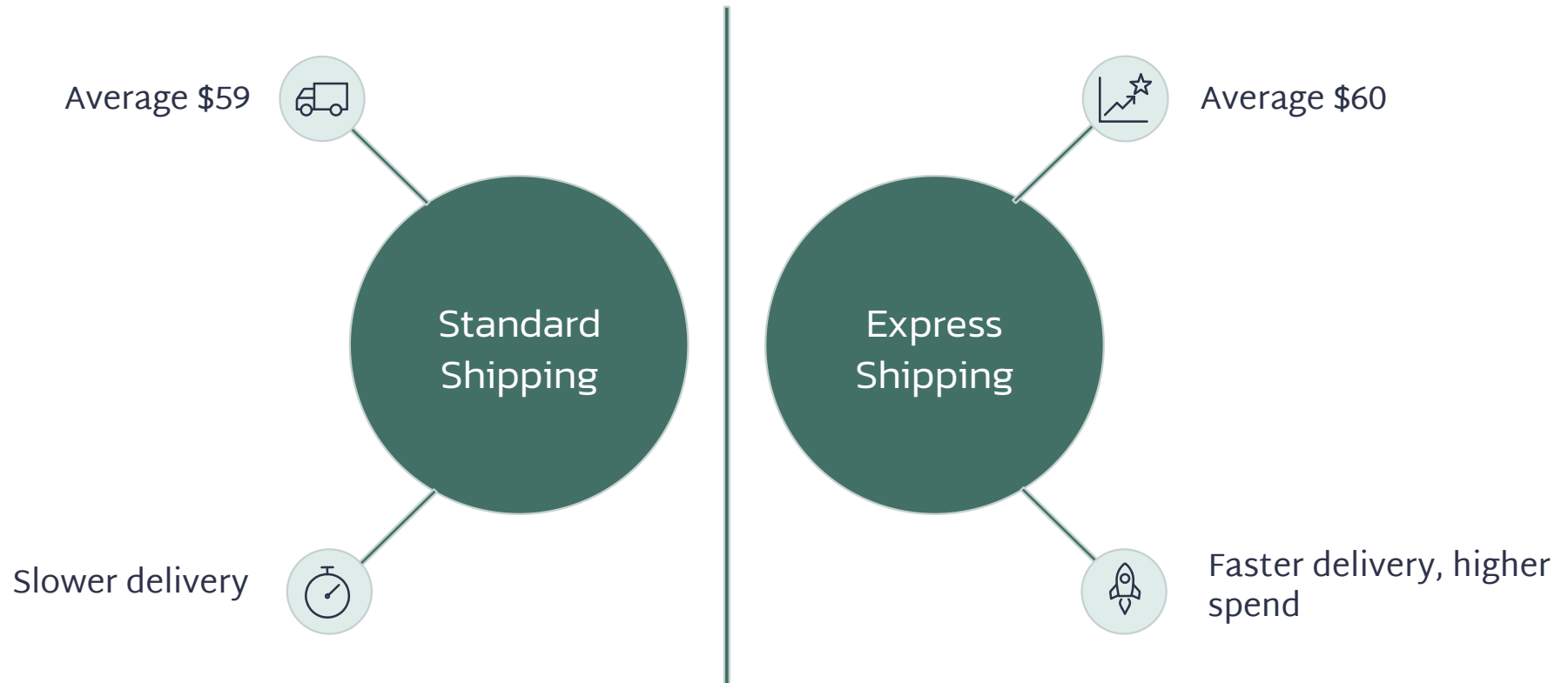
Non-Subscribers

Avg Spend: \$60.14

Total: \$170,543

Insight: Non-subscribers currently have a slightly higher average spend, suggesting a need for better loyalty perks.

Shipping & Discount Impact



Discount Efficiency

Identified high-value customers who use discounts but still exceed average spend.

Top Discounted Items

Blouses and Jewelry show the highest percentage of discounted purchases.

Strategic Recommendations



Target Young Adults

Design campaigns specifically for this high-revenue demographic.



Revamp Subscriptions

Add exclusive perks to increase the average spend of members.



Promote Express

Incentivize express shipping to drive larger basket sizes.

Inventory & Growth

Prioritize "Class A" Stock

Maintain 100% availability for top-ranked Clothing and Footwear items to sustain volume.

Repeat Buyer Conversion

Data shows repeat buyers (>5 purchases) are prime candidates for subscription conversion.



Next Steps: Implement targeted A/B testing on subscription perks.