Customer Shopping Behavior Analysis

Analyzing 3,900 purchases to uncover insights into spending patterns, customer segments, and product preferences that drive strategic business decisions.

Dataset Overview

3,900
Total Purchases
Transactions analyzed across all categories

18
Data Features
Comprehensive customer and purchase attributes

50
Locations
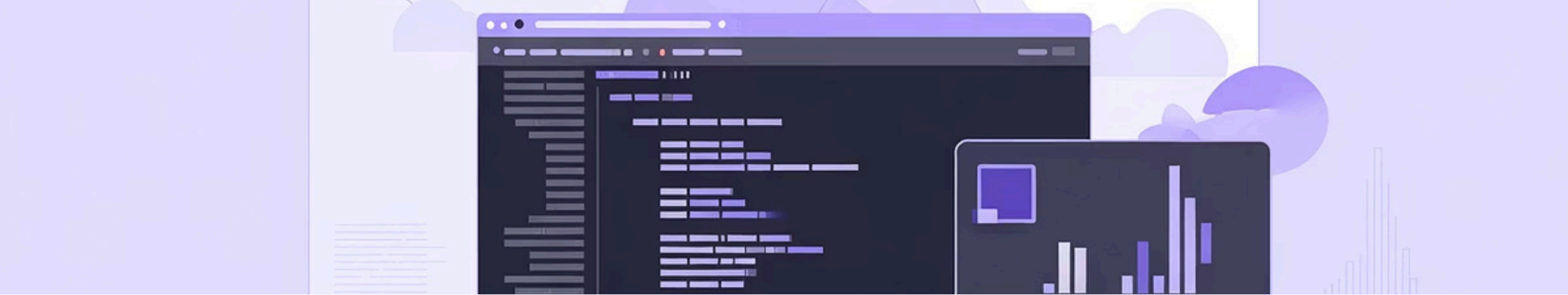Geographic diversity in customer base

25
Products
Unique items across four categories

Customer Demographics

- Age, Gender, Location
- Subscription Status
- Purchase History

Shopping Behavior

- Discounts & Promo Codes
- Review Ratings
- Shipping Preferences

Data Preparation & Cleaning

01

Data Loading & Exploration

Imported dataset using pandas, examined structure with df.info() and summary statistics

02

Missing Data Handling

Imputed 37 missing Review Rating values using median rating per product category

03

Feature Engineering

Created age_group bins and purchase_frequency_days for deeper analysis

04

Database Integration

Connected to PostgreSQL and loaded cleaned data for SQL analysis

Revenue by Gender

Male   Female
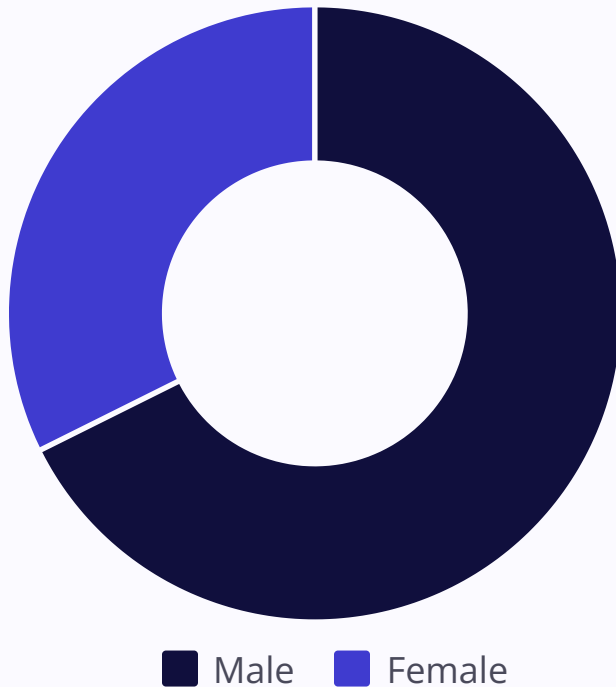
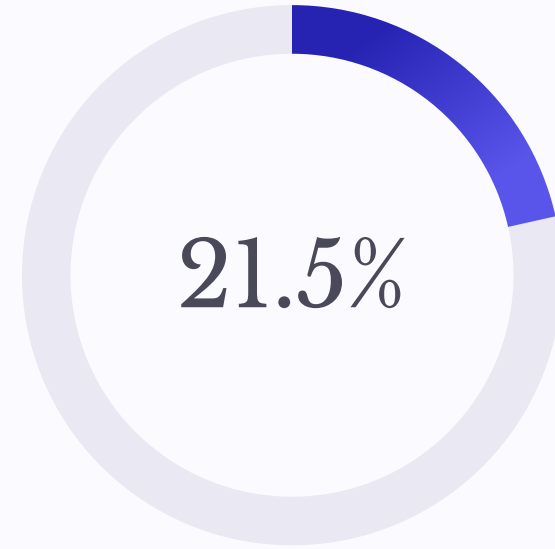Male customers generate **$157,890** in revenue compared to **$75,191** from female customers.

This 2:1 revenue ratio suggests opportunities for targeted marketing to balance customer engagement.

High-Value Discount Users

839

Smart Shoppers

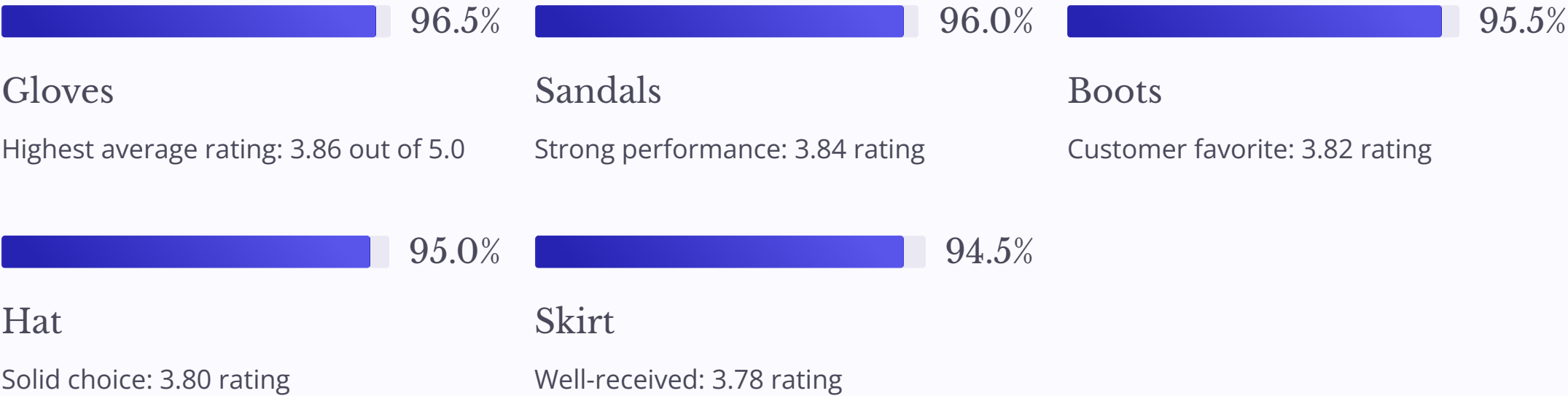Customers who used discounts but spent above average ($59.76)

21.5%
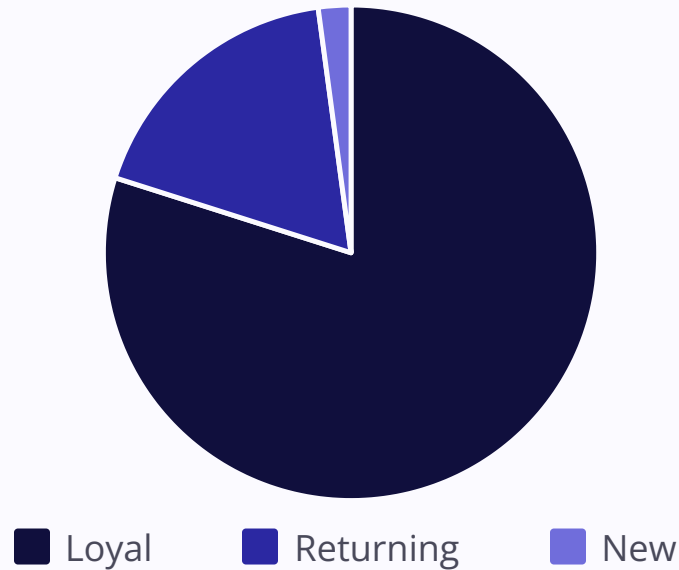
Customer Share

Percentage of total customer base

📝 **Key Insight:** These customers demonstrate that discounts don't necessarily mean lower-value purchases. They're strategic shoppers who still invest in quality products.

Top-Rated Products

96.5%

Gloves

Highest average rating: 3.86 out of 5.0

96.0%

Sandals

Strong performance: 3.84 rating

95.5%

Boots

Customer favorite: 3.82 rating

95.0%

Hat

Solid choice: 3.80 rating

94.5%

Skirt

Well-received: 3.78 rating

These top-rated products should be featured prominently in marketing campaigns and inventory planning.

Customer Segmentation Analysis

Loyal   Returning   New

Segment Breakdown

- **Loyal (80%):** 3,116 customers with strong purchase history

- **Returning (18%):** 701 customers showing repeat behavior

- **New (2%):** 83 first-time customers

Focus on converting Returning customers to Loyal status through targeted loyalty programs.

Subscription Impact

| Subscribers	Non-Subscribers
1,053 customers	**2,847 customers**
Average spend: **$59.49**	Average spend: **$59.87**
Total revenue: **$62,645**	Total revenue: **$170,436**

Repeat Buyers & Subscriptions

Among customers with 5+ purchases:

- 958 are subscribers
- 2,518 are non-subscribers

Opportunity: Convert high-frequency buyers to subscribers with exclusive benefits and rewards.

Revenue by Age Group
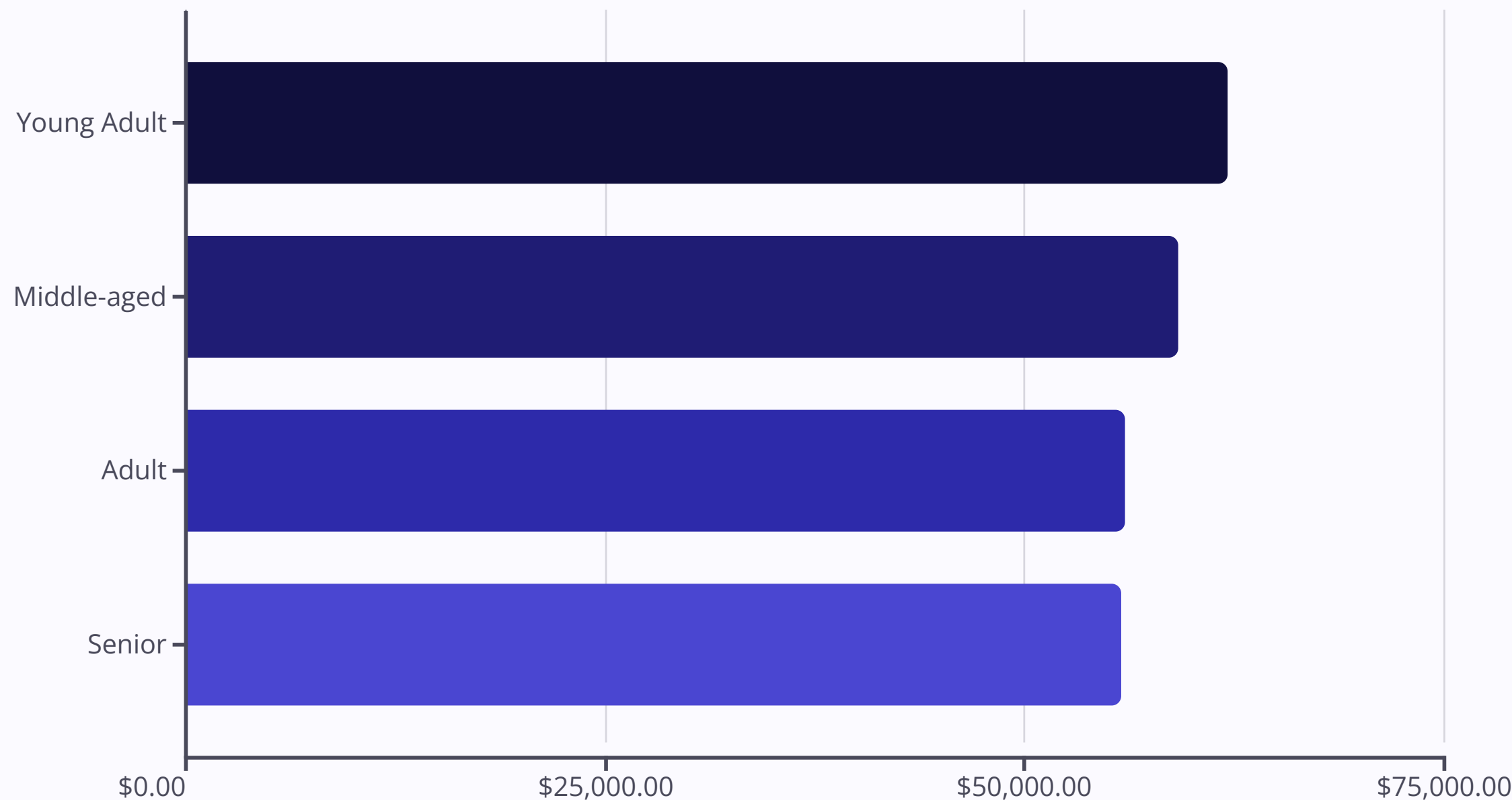
Young Adults lead revenue generation at **$62,143**, followed closely by Middle-aged customers. All segments show balanced contribution, suggesting broad market appeal.

Strategic Recommendations

Boost Subscriptions

Promote exclusive benefits for subscribers, especially targeting the 2,518 repeat buyers who aren't yet subscribed.

Customer Loyalty Programs

Reward repeat buyers to accelerate their journey from Returning to Loyal segment status.

Review Discount Policy

Balance sales boosts with margin control—839 customers prove discounts work with high-value purchases.

Product Positioning

Highlight top-rated products (Gloves, Sandals, Boots) and best-sellers in marketing campaigns.

Targeted Marketing

Focus efforts on high-revenue Young Adult segment and express-shipping users who spend $2 more on average.