



Customer Shopping Behavior Analysis

Uncovering insights from 3,900 purchases to guide strategic business decisions through data-driven analysis of spending patterns, customer segments, and product preferences.

Dataset Overview

3,900

Total Purchases

Transactions analyzed
across all categories

18

Data Features

Comprehensive
customer and purchase
attributes

25

Product Types

Diverse items across
four main categories

50

Locations

Geographic coverage
across multiple regions

Customer Demographics

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

Shopping Behavior

- Discount & Promo Usage
- Review Ratings
- Shipping Preferences



Data Preparation & Cleaning

01

Data Loading & Exploration

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

02

Missing Data Handling

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

03

Feature Engineering

Created `age_group` and `purchase_frequency_days` columns for deeper analysis

04

Database Integration

Connected to PostgreSQL and loaded cleaned data for SQL analysis

Revenue Insights by Gender



Male Customers Drive Revenue

Male customers generated \$157,890 in total revenue, more than double the \$75,191 from female customers.

This significant disparity suggests opportunities for targeted marketing to balance customer engagement.

Customer Segmentation Analysis

Loyal Customers

3,116 customers

The largest segment, representing our core customer base with consistent purchase patterns

Returning Customers

701 customers

Growing segment showing potential for conversion to loyal status

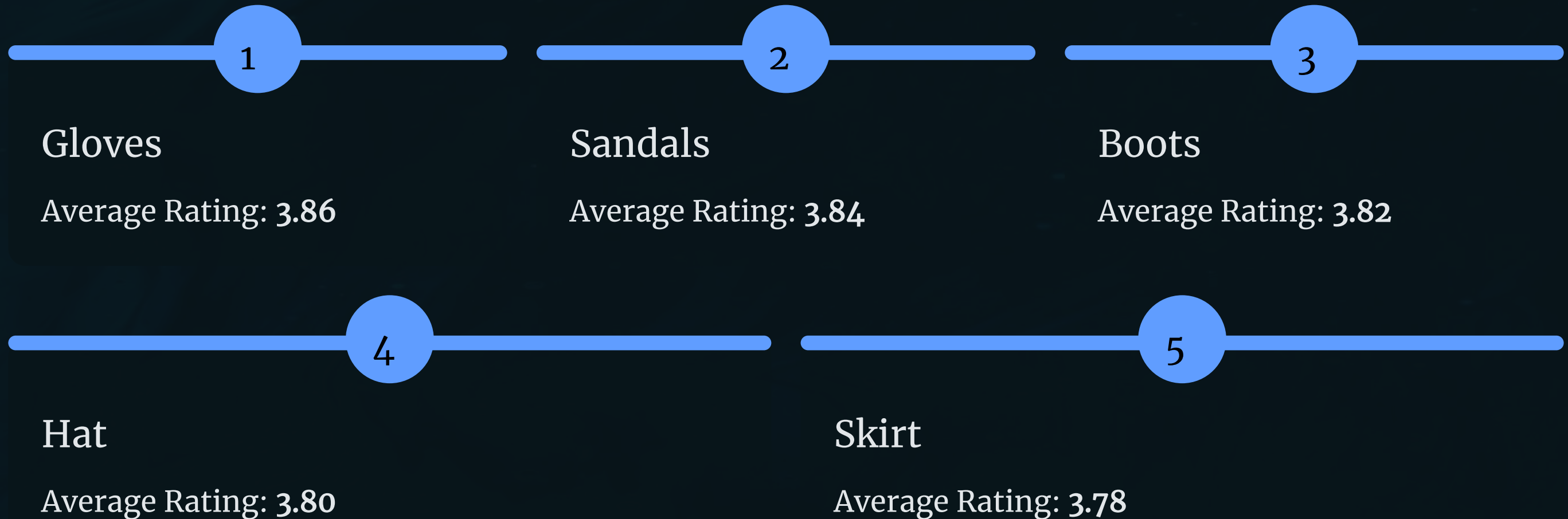
New Customers

83 customers

Smallest segment requiring nurturing strategies to encourage repeat purchases

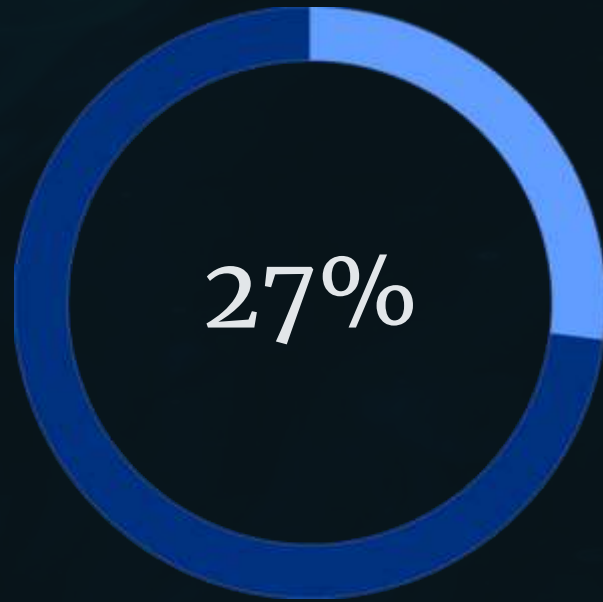


Top-Rated Products



These top-rated products represent excellent opportunities for featured promotions and marketing campaigns to drive sales.

Subscription vs. Non-Subscription Performance

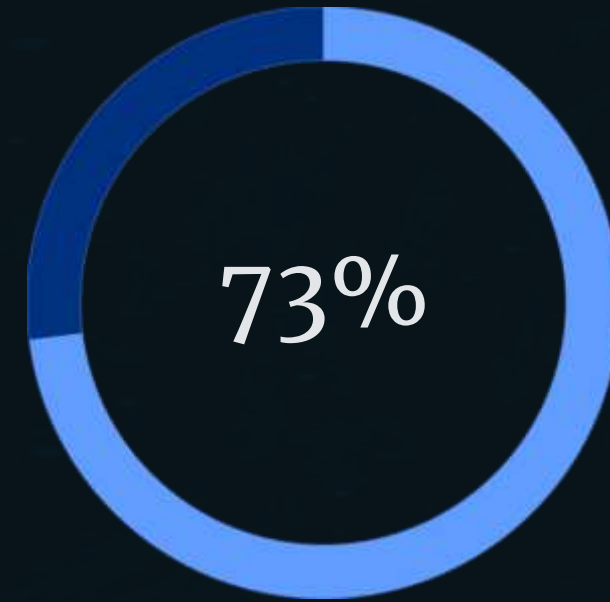


Subscribers

1,053 customers with subscription status

Subscriber Metrics

- Average Spend: \$59.49
- Total Revenue: \$62,645



Non-Subscribers

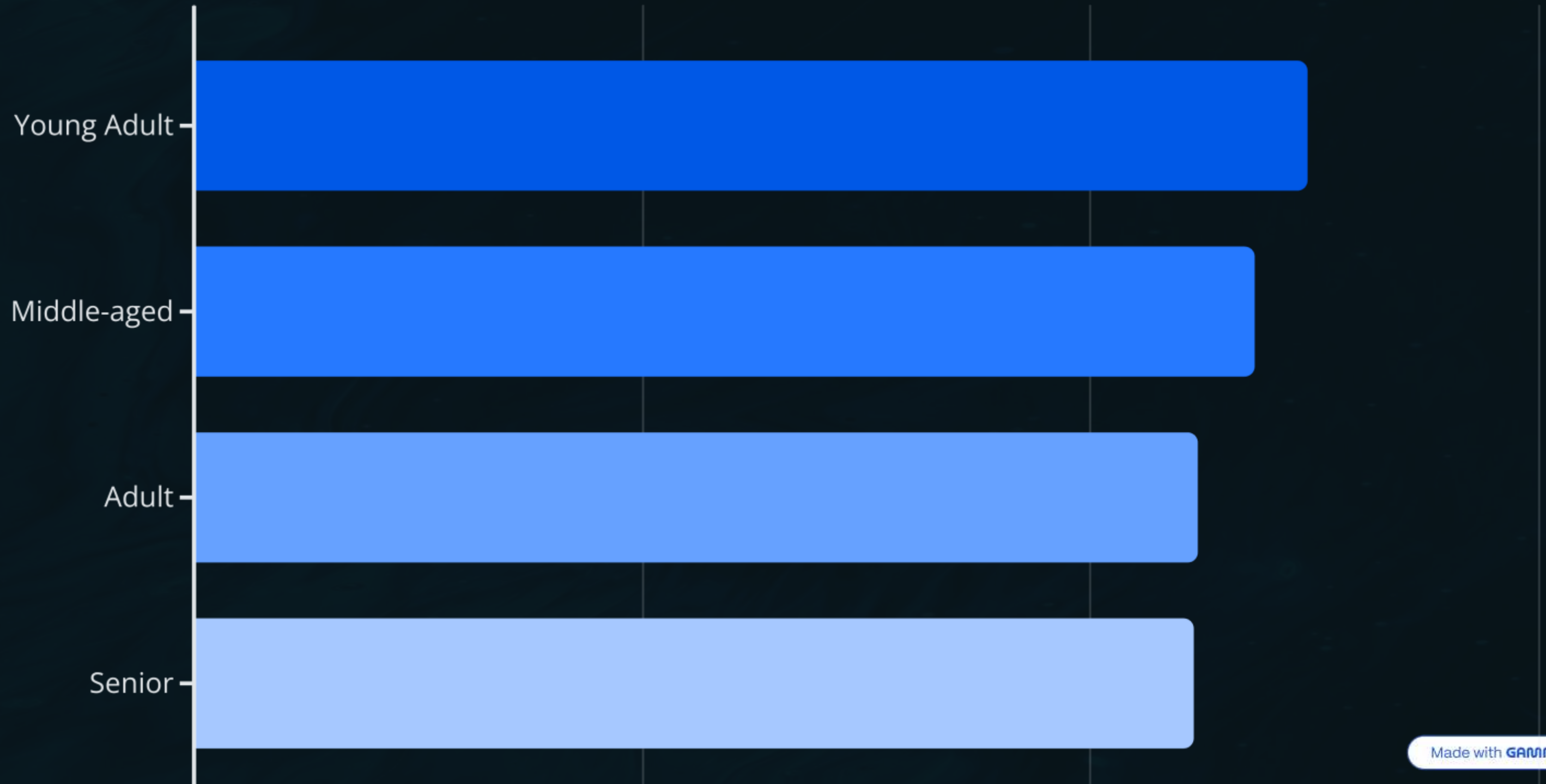
2,847 customers without subscription

Non-Subscriber Metrics

- Average Spend: \$59.87
- Total Revenue: \$170,436

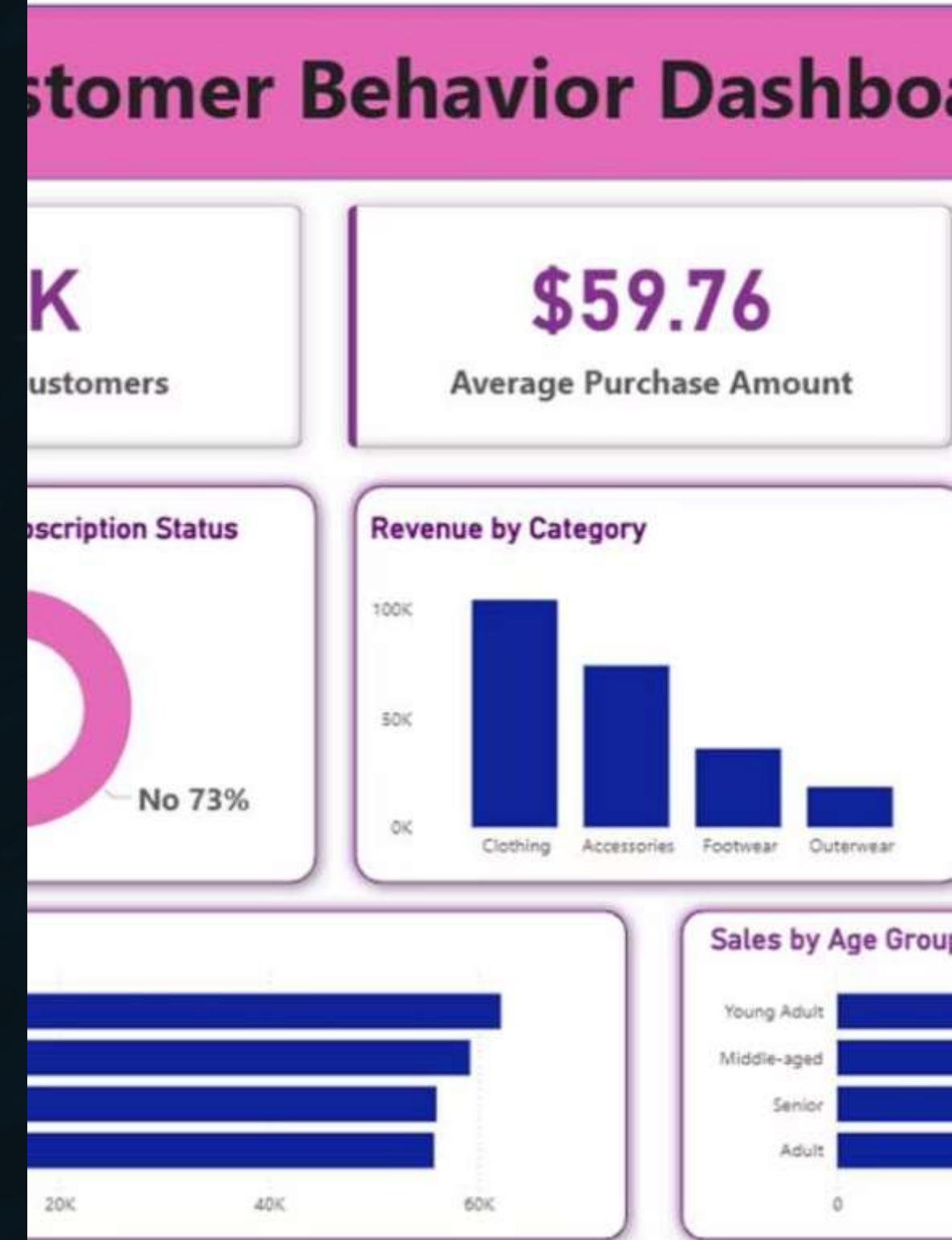
Despite similar average spend, non-subscribers generate significantly more total revenue due to their larger numbers, presenting a major opportunity for subscription growth.

Revenue Distribution by Age Group



Interactive Power BI Dashboard

Comprehensive visualization bringing together all key metrics and insights for real-time business intelligence and decision-making.



Strategic Recommendations

Boost Subscriptions

Promote exclusive benefits to convert the 73% non-subscriber base into recurring revenue

Loyalty Programs

Reward repeat buyers to move returning customers into the loyal segment

Review Discount Policy

Balance promotional sales boosts with margin control for sustainable growth

Targeted Marketing

Focus efforts on high-revenue age groups and highlight top-rated products in campaigns