Customer Shopping Behavior Analysis

Uncovering insights from **3,900** purchases across product categories to guide strategic business decisions.

Dataset Overview

3,900 Purchases

Transactions analyzed across multiple product categories.

18 Data Columns

Demographics, purchase details, and shopping behavior tracked.

37 Missing Values

Review ratings imputed using median by product category.

Data Preparation & Engineering

01
Data Loading

Imported dataset using pandas and checked structure with df.info().

02
Missing Data Handling

Identified and imputed null values in Review Rating column.

03
Column Standardization

Renamed columns to snake_case for consistency and readability.

04
Feature Engineering

Created age_group and purchase_frequency_days columns for deeper analysis.

05
Database Integration

Loaded cleaned data into MYSQL for SQL analysis.

Revenue & Customer Insights

Revenue by Gender

Compared total revenue generated by male versus female customers to identify spending patterns.

Subscription Impact

Non-subscribers: 2,847 customers, $170,436 total revenue. Subscribers: 1,053 customers, $62,645 revenue.

Top Products & Performance

Highest Rated

Gloves (3.86), Sandals (3.84), Boots (3.82), Hat (3.80), Skirt (3.78)
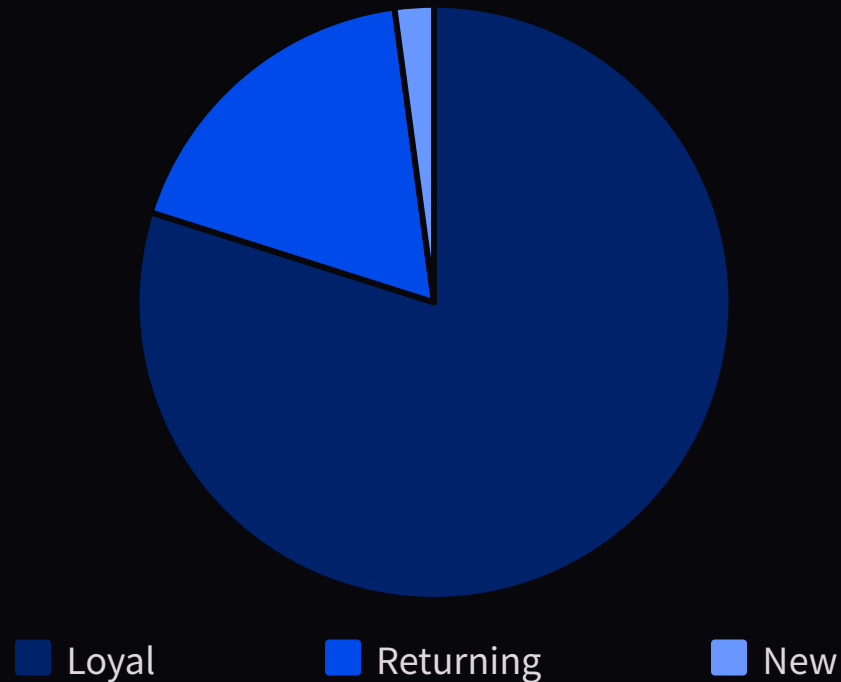
Most Purchased

Accessories: Jewelry (171), Sunglasses (161), Belt (161).
Clothing: Blouse & Pants (171 each).

Discount Dependency

Hat (50%), Sneakers (49.66%), Coat (49.07%) show highest discount usage rates.

Customer Segmentation

■ Loyal   ■ Returning   ■ New

Loyal customers dominate the base (80%), indicating strong repeat purchase behavior. Focus on converting New and Returning customers into Loyal segments.

Shipping & Spending Patterns

Shipping Type Impact

Express: $60.48 avg purchase.
Standard: $58.46 avg purchase.

Express shipping correlates with higher spending.

Age Group Revenue

Young Adult: $62,143. **Middle-Aged:** $59,197. **Adult:** $55,978. **Senior:** $55,763.

High-Value Discount Users

Identified customers using discounts while spending above average purchase amount ($59.68):

Customer ID	Purchase Amount
2	$64
3	$73
4	$90
7	$85
9	$97

These customers represent high-value opportunities for targeted promotions and loyalty programs.

Power BI Dashboard

Interactive visualization presenting all key metrics and insights for real-time business monitoring.
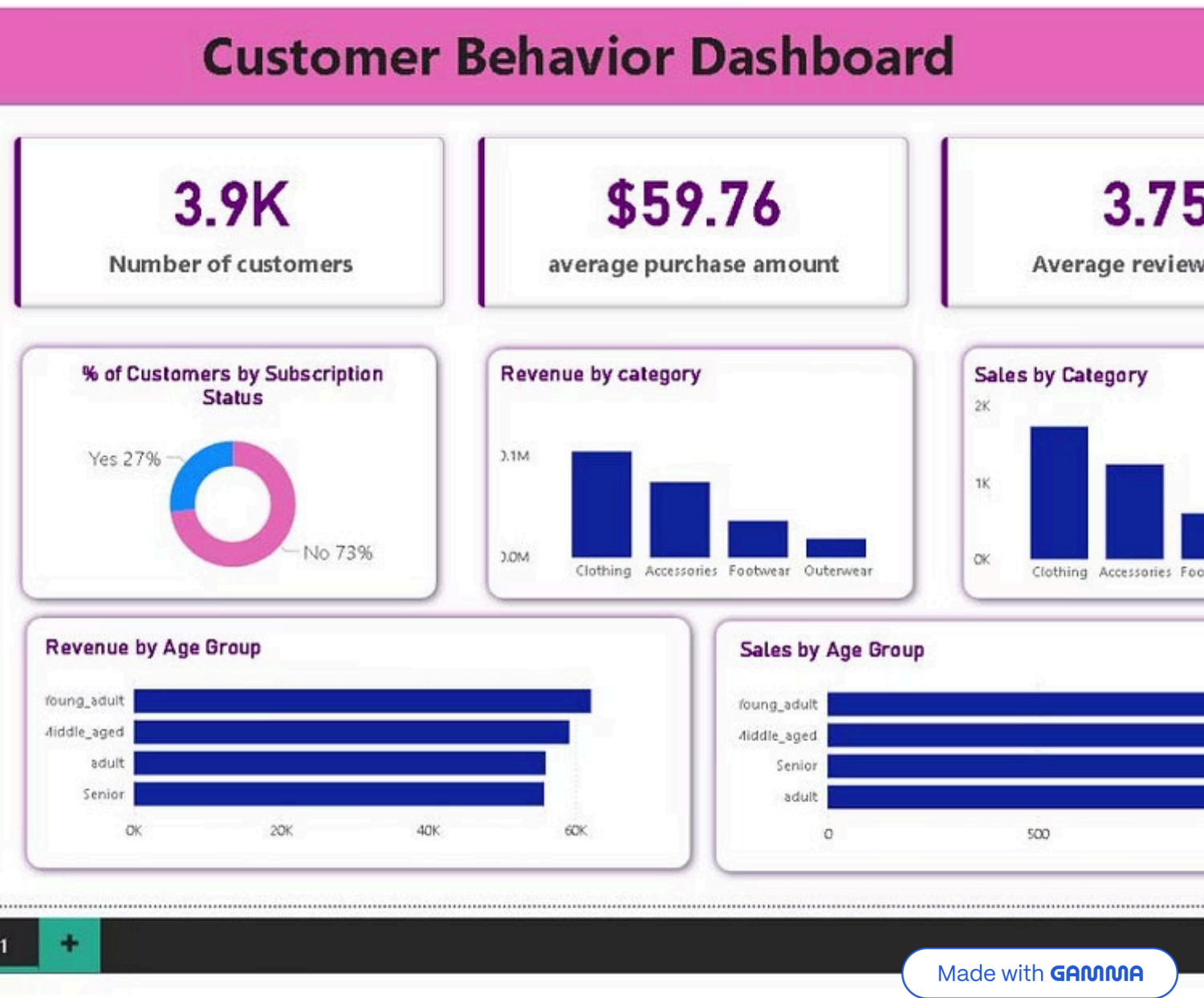
Strategic Recommendations

1 **Boost Subscriptions**

Promote exclusive benefits to increase subscriber base and lifetime value.

2 **Loyalty Programs**

Reward repeat buyers to move them into the Loyal segment (currently 80% of base).

3 **Review Discount Policy**

Balance sales boosts with margin control; Hat and Sneakers show 50% discount rates.

4 **Targeted Marketing**

Focus on high-revenue age groups and express-shipping users for maximum ROI.