

Customer Shopping Behavior Analysis

Analyzing 3,900 customer transactions to uncover spending patterns, product preferences, and subscription behavior that drive strategic business decisions.

The Foundation: Our Data

3,900

Total Purchases

Transactions analyzed across all categories

18

Data Columns

Features covering demographics and behavior

37

Missing Values

Only in Review Rating column

Customer Demographics

- Age, Gender, Location
- Subscription Status

Shopping Behavior

- Purchase patterns and frequency
- Discount and promo usage
- Review ratings and 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 Review Rating nulls using median rating per product category

03

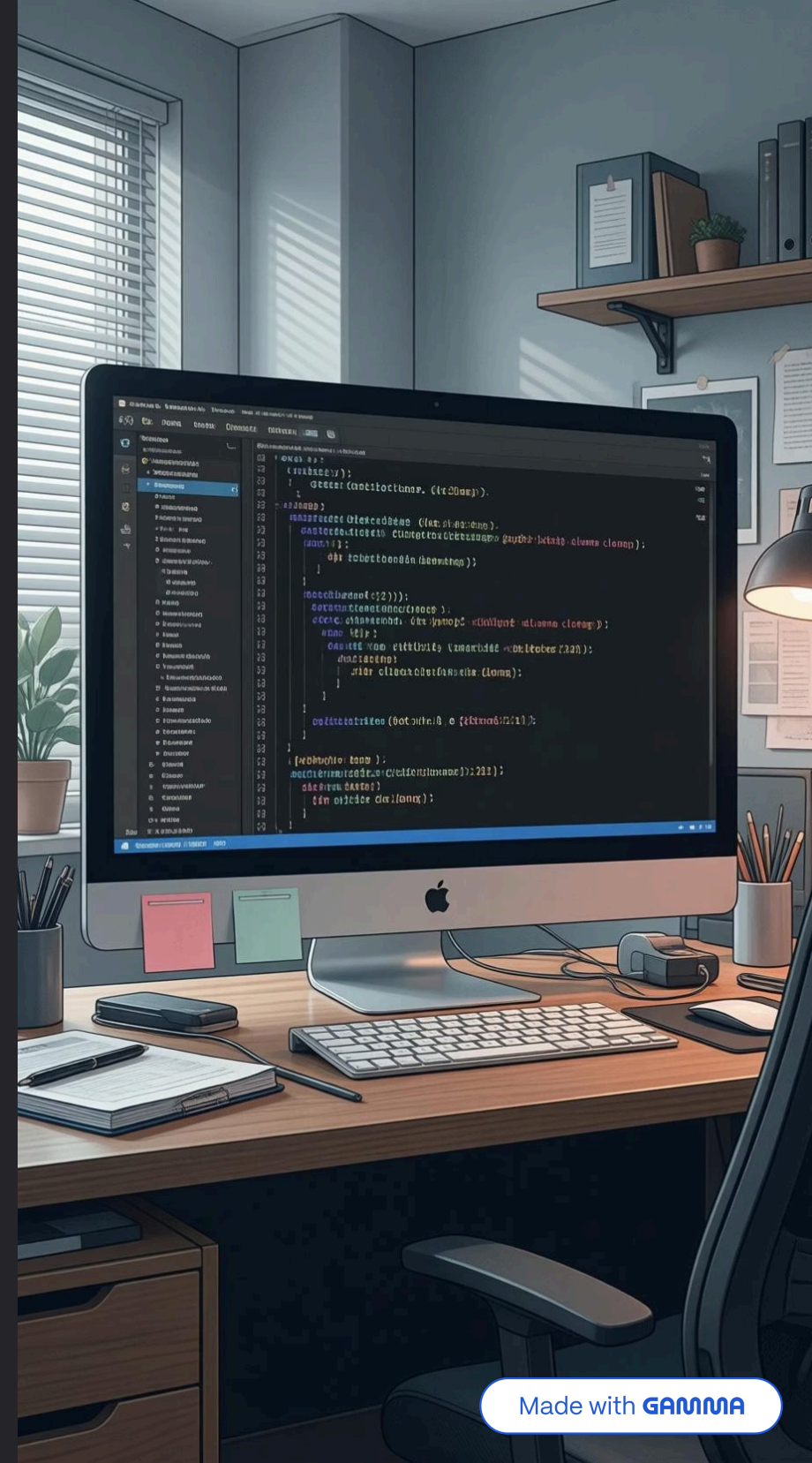
Feature Engineering

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

04

Database Integration

Connected to PostgreSQL and loaded cleaned data for SQL analysis



Key Business Questions Explored

Revenue by Gender

Compared total revenue generated by male vs. female customers

High-Spending Discount Users

Identified customers using discounts but spending above average

Top-Rated Products

Found products with highest average review ratings

Shipping Type Impact

Compared purchase amounts between Standard and Express shipping

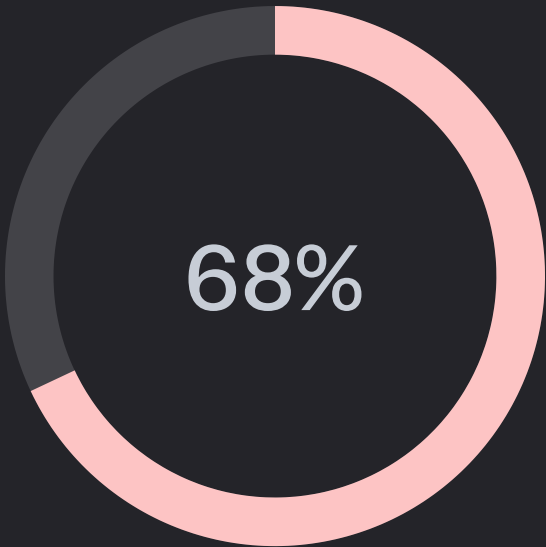
Subscriber Analysis

Examined spending differences across subscription status

Customer Segmentation

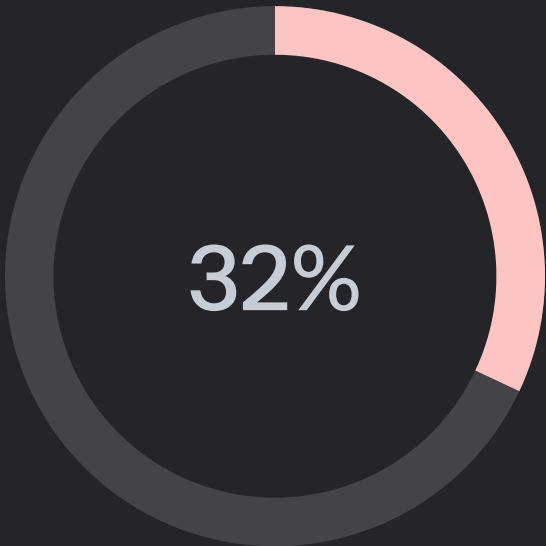
Classified customers into New, Returning, and Loyal segments

Revenue & Demographics Insights



Male Revenue Share

\$157,890 from male customers



Female Revenue Share

\$75,191 from female customers

Generational Drivers

Young Adults lead revenue at \$62,143, followed closely by Middle-aged consumers at \$59,197



CRITICAL FINDING

The Subscription Gap



Non-Subscribers

\$170,436 total revenue

2847 total customers

Higher volume drives revenue

Subscribers

\$62,645 total revenue

1053 total customers



Average Spend

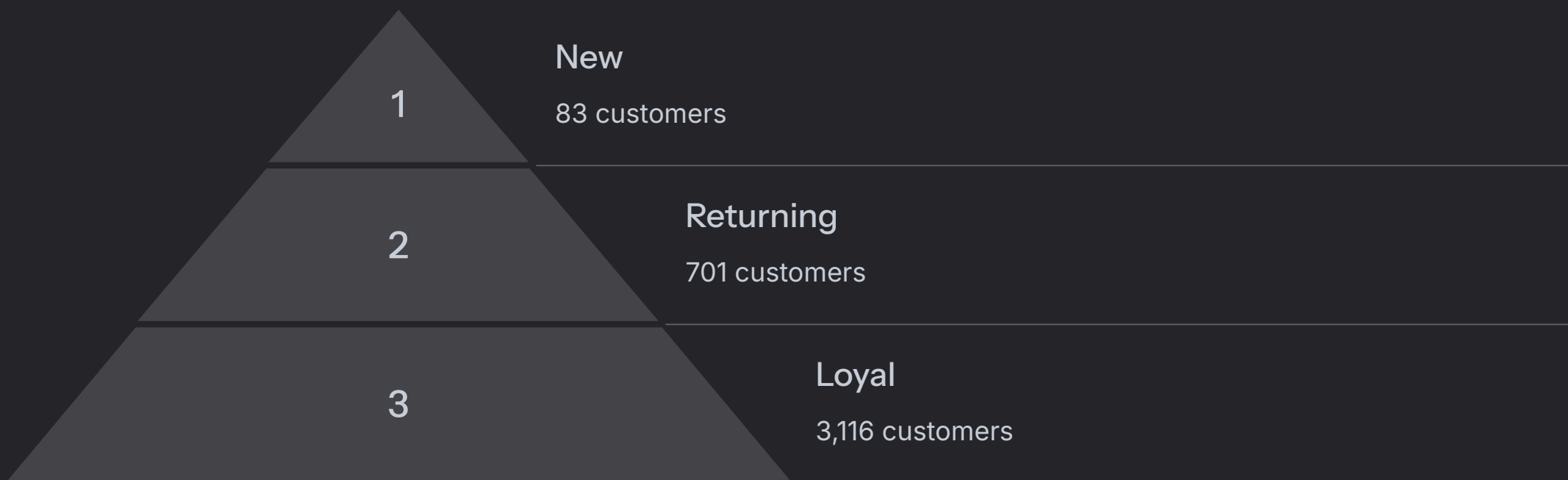
~**\$59** per transaction

Consistent across both groups

Key Opportunity: While average spend is equal, converting non-subscribers could unlock significant recurring revenue potential.



Loyalty & Retention Dynamics



Strong Retention

Massive loyal base with 10+ previous purchases indicates excellent customer satisfaction and repeat business.

Acquisition Challenge

Only 83 new customers suggests potential need for improved top-of-funnel marketing strategies.

PRODUCT PERFORMANCE

Top-Rated Products & Shipping Impact



Gloves

Highest customer satisfaction



Sandals

Second highest rating

Logistics Impact on Spending



Standard Shipping

\$58.46 average purchase



Express Shipping

\$60.48 average purchase

Action Plan for Growth

1

Hyper-Personalized Marketing

Target Young Adult and Middle-aged segments with premium Clothing and Accessories as primary revenue drivers

2

Loyalty-to-Subscription Conversion

Convert 2,518 repeat buyers into subscribers through exclusive incentives—958 already subscribed

3

Discount Optimization

Focus discounts on Hats and Sneakers (50% discount dependency) while protecting margins on high-rated items

4

Logistics Upselling

Offer "Free Express Shipping" rewards for Returning customers to push them into Loyal tier



Dashboard & Next Steps

Interactive Power BI Dashboard

Built comprehensive visualization tool presenting all insights with real-time filtering and drill-down capabilities.

Immediate Implementation

- Launch subscription incentive campaigns
- Optimize discount strategies by product
- Develop loyalty rewards program
- Test express shipping promotions

Expected Impact: These data-driven strategies position us to maximize ROI through targeted marketing, improved retention, and optimized logistics.