



Customer Shopping Behavior Analysis

Understanding purchasing patterns to drive sales, satisfaction, and loyalty



The Challenge

Business Question

How can we leverage consumer shopping data to identify trends, improve engagement, and optimize marketing strategies?

Key Focus Areas

- Purchasing patterns across demographics
- Product category performance
- Online vs. offline behavior
- Discount and review impact

Project Scope

Dataset Size

3,900 transactions analyzed

Data Points

18 key features tracked

Analysis Tools

Python, SQL, Tableau

Comprehensive analysis of customer demographics, purchase details, and shopping behavior to uncover actionable insights



Data Preparation Journey



Data Loading

Imported dataset using pandas, explored structure and statistics



Data Cleaning

Handled 37 missing review ratings using median imputation by category



Feature Engineering

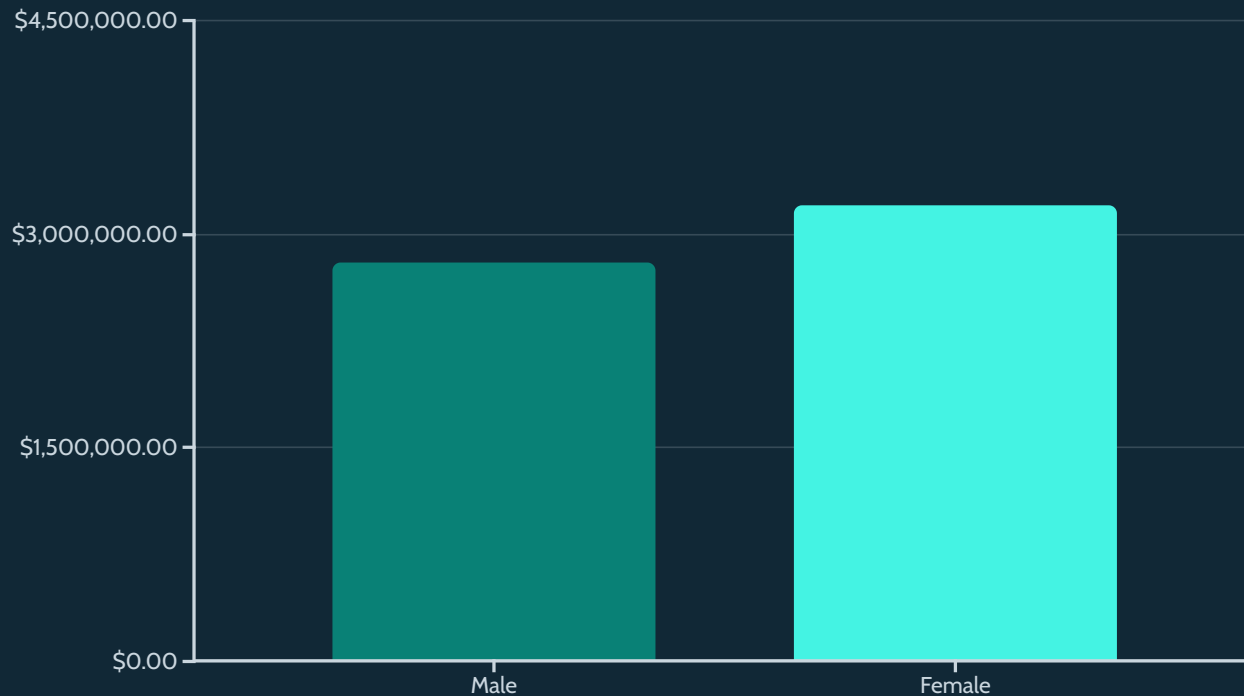
Created age groups and purchase frequency metrics



Database Integration

Connected to PostgreSQL for advanced SQL analysis

Revenue Insights



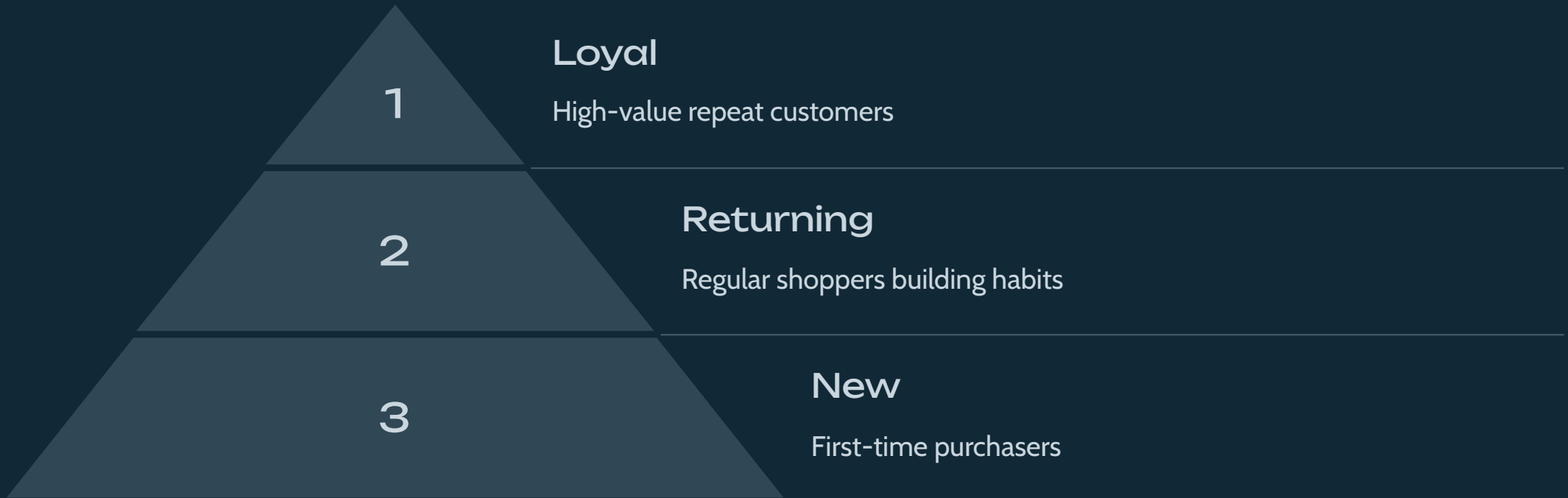
Gender Comparison

Female customers generate higher total revenue

Shipping Preference

Express shipping users spend more on average than standard shipping customers

Customer Segmentation



Classification based on purchase history reveals opportunities to move customers up the loyalty ladder



Product Performance

1

Top-Rated Products

Identified 5 products with highest average review ratings

2

Best Sellers by Category

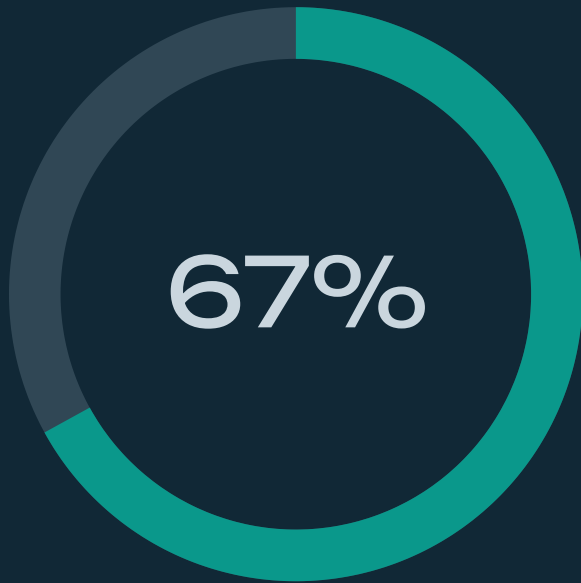
Top 3 most purchased items in each product category

3

Discount-Dependent Items

5 products with highest percentage of discounted purchases

Subscription Impact



Repeat Buyers

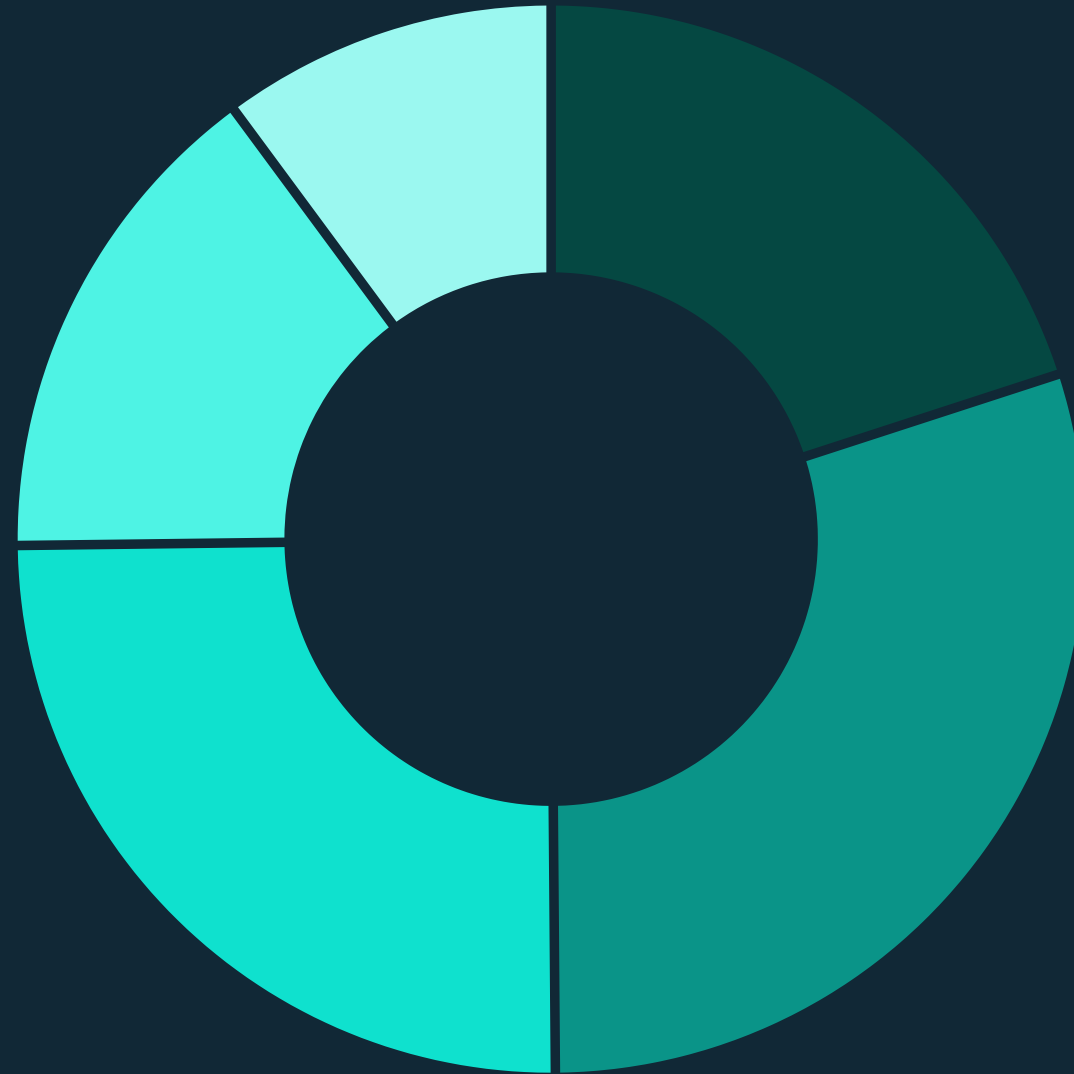
Customers with 5+ purchases more likely to subscribe

Key Finding

Subscribers show higher average spend and contribute significantly more to total revenue

Opportunity to convert loyal customers into subscription members

Age Group Revenue Distribution



18-25

26-35

36-45

46-55

56+

26-35 age group drives highest revenue contribution, followed by 36-45 segment

Strategic Recommendations



Boost Subscriptions

Promote exclusive benefits for subscribers



Loyalty Programs

Reward repeat buyers to move them into loyal segment



Review Discount Policy

Balance sales boosts with margin control



Targeted Marketing

Focus on high-revenue age groups and express-shipping users



Product Positioning

Highlight top-rated and best-selling products in campaigns