Customer Shopping Behavior Analysis

Uncovering insights from 3,900 purchases to drive strategic business decisions

Dataset at a Glance

3,900
Total Purchases

Transactions analyzed

18
Data Points

Features per customer

37
Missing Values

In review ratings only

Key features: demographics, purchase details, shopping behavior, subscription status

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Data Preparation Journey

01

Data Loading & Exploration

Imported dataset, checked structure with df.info() and summary statistics

02

Missing Data Handling

Imputed review ratings using median by product category

03

Column Standardization

Renamed to snake_case for clarity and consistency

04

Feature Engineering

Created age_group and purchase_frequency_days columns

05

Database Integration

Connected to PostgreSQL for SQL analysis

Revenue by Gender

Key Question

What is the total revenue generated by male vs. female customers?

SQL analysis reveals spending patterns across gender segments

Top Performing Products

Highest Rated Items
Top 5 products by average review rating identified

Discount Champions
5 products with highest discount purchase rates
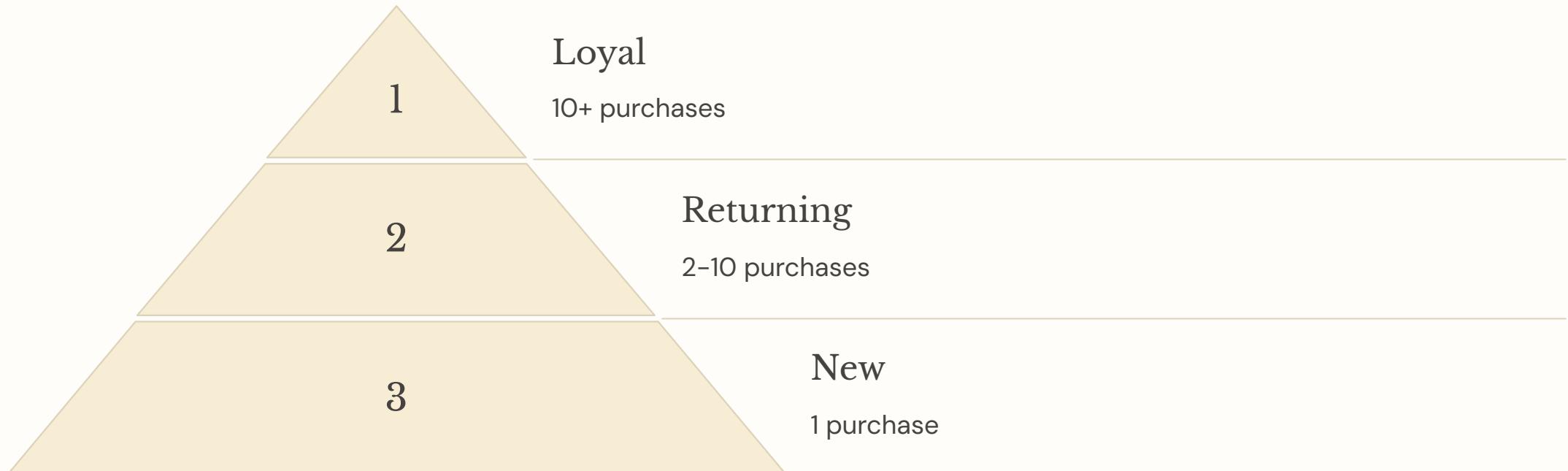
Category Leaders
Top 3 most purchased items per category

Customer Segmentation Insights

Loyal
10+ purchases

Returning
2–10 purchases

New
1 purchase
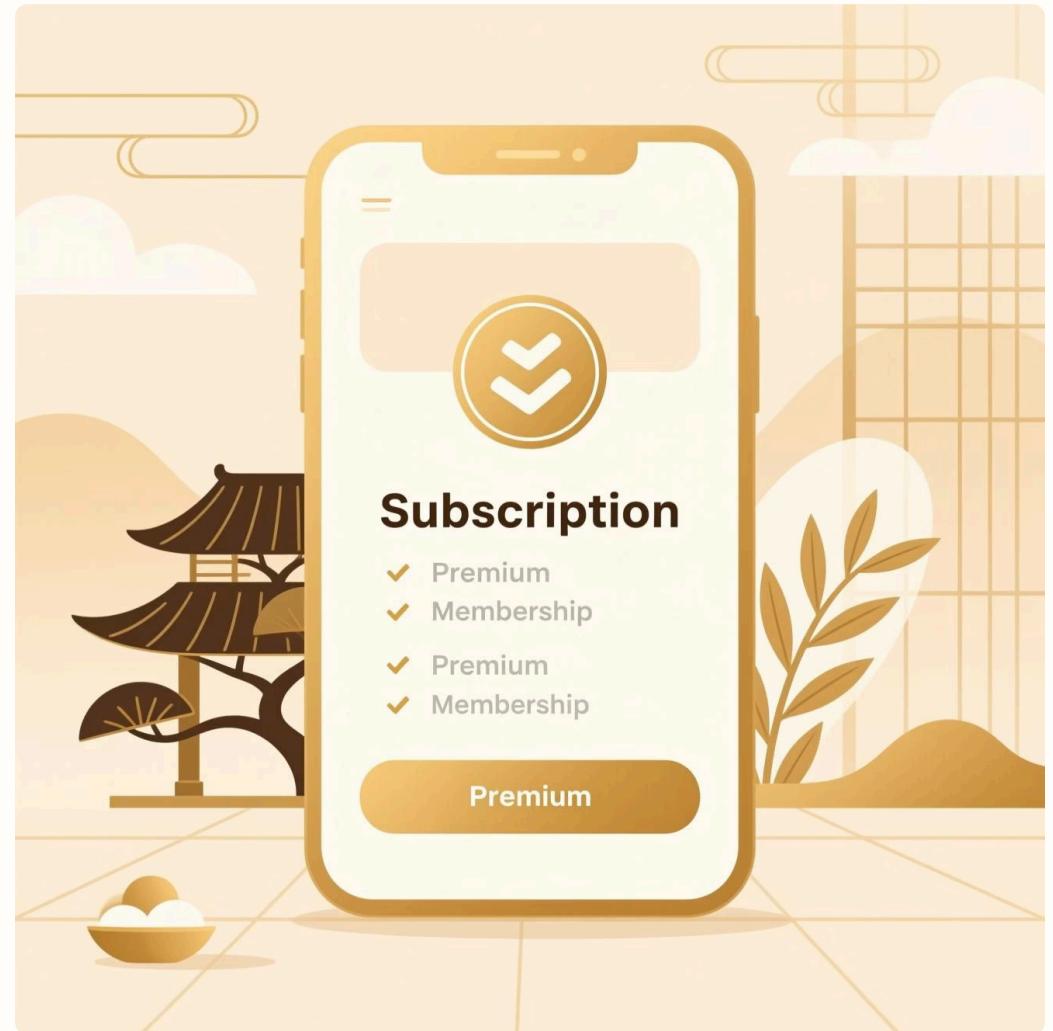
Segmentation based on previous purchase history reveals customer lifecycle patterns

Subscription Impact

Do subscribers spend more?
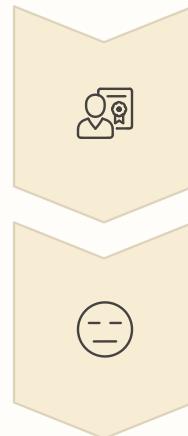
- Average spend comparison

- Total revenue analysis

- Customer count by status

Repeat buyers (5+ purchases) show strong subscription correlation

Shipping & Spending Patterns

Standard Shipping

Average purchase amount analyzed

Express Shipping

Premium delivery preference insights

Customers using discounts but spending above average identified for targeted campaigns

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Power BI Dashboard

Visual Insights

Interactive dashboard presenting key metrics and trends

Age Group Revenue

Revenue contribution by customer age segments

Strategic Recommendations

Boost Subscriptions
Promote exclusive benefits to convert high-value customers

Loyalty Programs
Reward repeat buyers to move them into "Loyal" segment

Review Discount Policy
Balance sales boosts with margin control

Product Positioning
Highlight top-rated and best-selling items in campaigns

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