CUSTOMER BEHAVIOR ANALYSIS

Data-Driven Strategy for Growth and Optimization

Project Overview & Methodology

Analysis Objective

- Uncover patterns in **Spending**, **Subscription**, and **Product Preferences**.

- Guide strategic decisions in **Marketing** and **Customer Management**.

- Analysis based on **3,900** customer transactions.

Technology Stack

Python (Pandas)

Data Cleaning, EDA, and Feature Engineering.

MS SQL Server
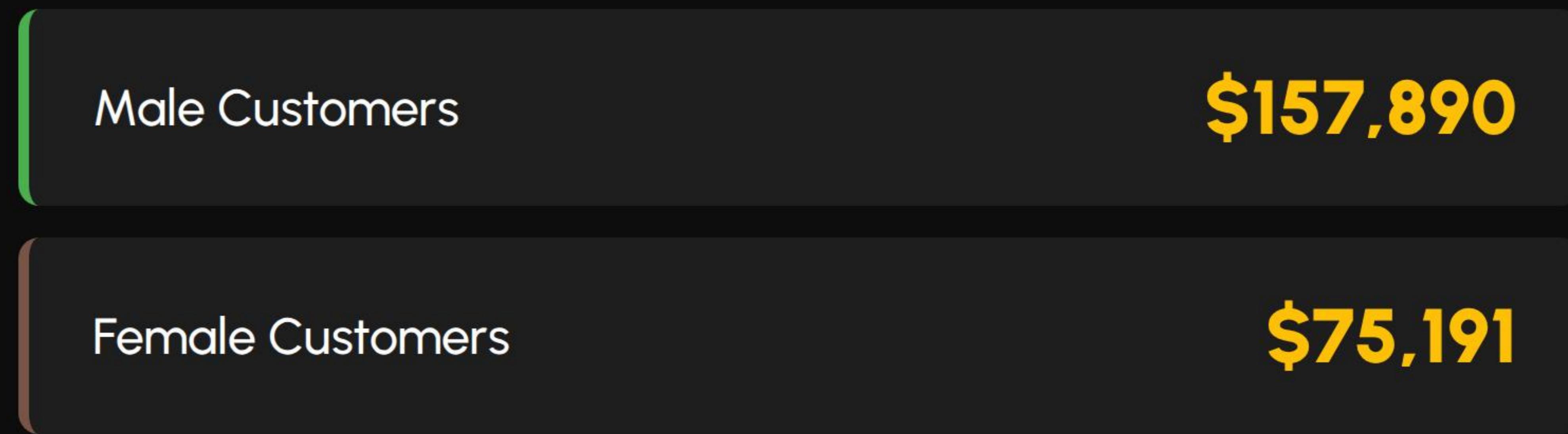
Structured, business-driven analytical queries.

Power BI

Interactive Visualization and Reporting.

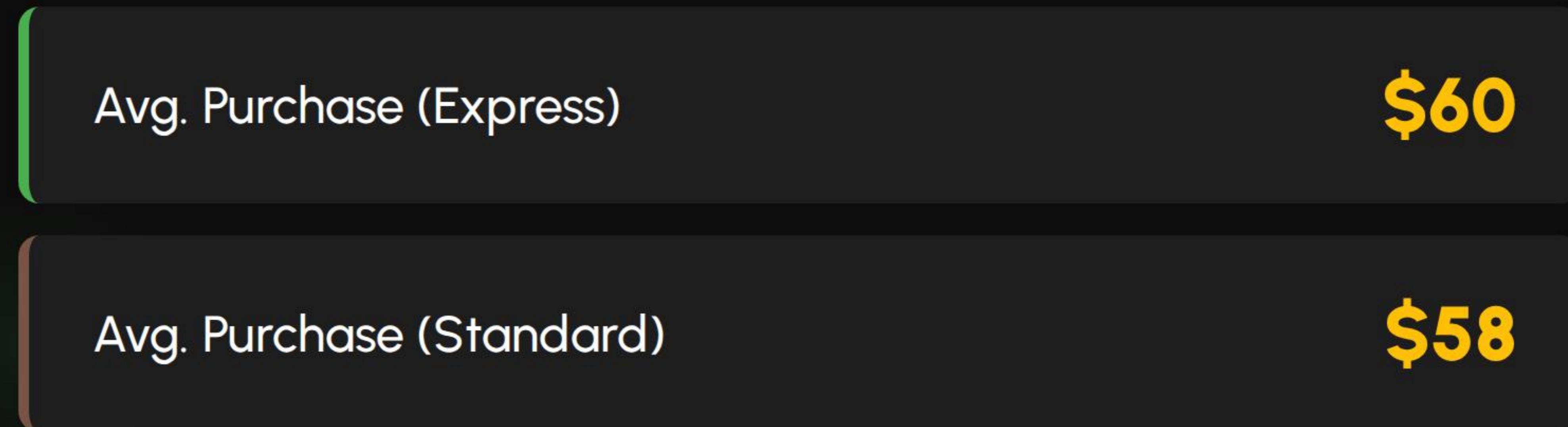# Quantified Insight 1: Revenue & Spending Disparities

Gender Revenue Split

Male Customers	**$157,890**
Female Customers	**$75,191**

Shipping Impact

Avg. Purchase (Express)	**$60**
Avg. Purchase (Standard)	**$58**

$59.76
Overall Average Purchase Amount

4x
Male Revenue is more than double Female Revenue.
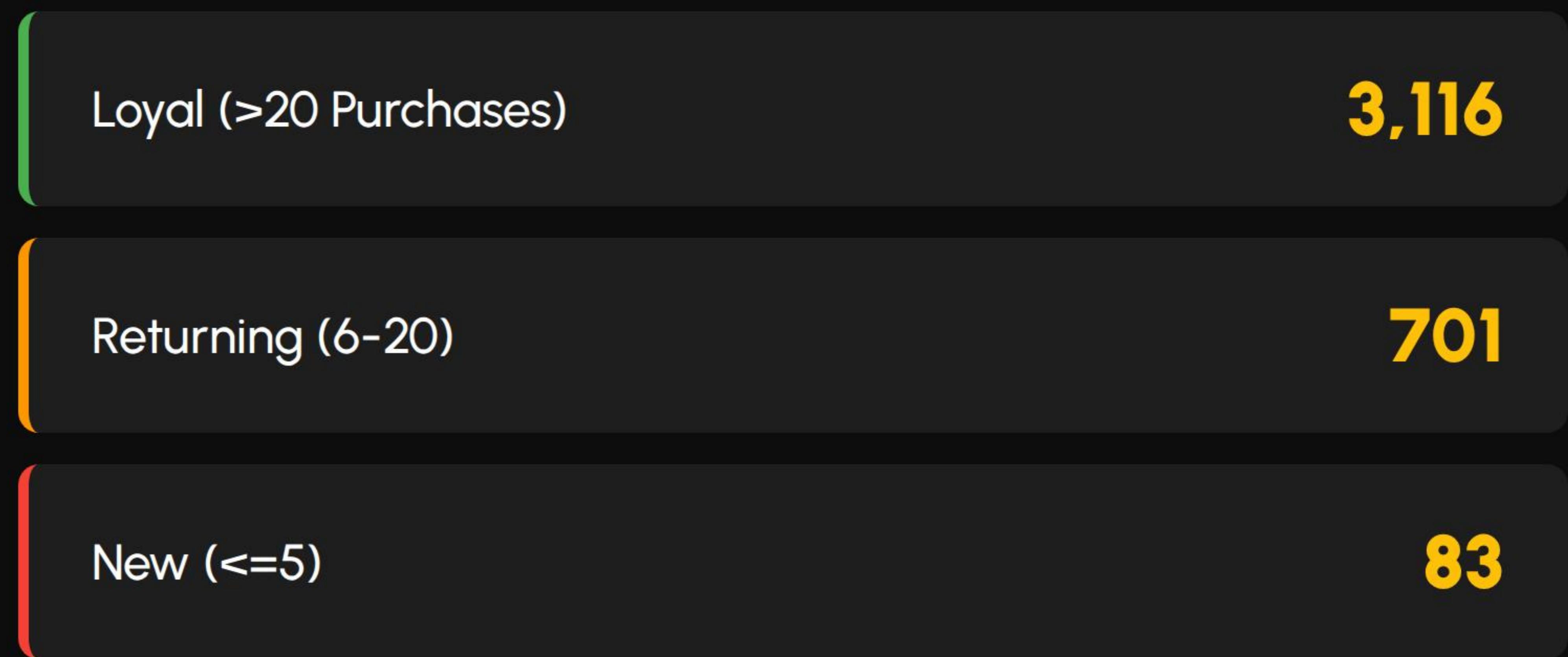
High-Value Discount Users: IDs 43, 96, 194, and 205 used a discount but still spent the maximum of $100.

Quantified Insight 2: Subscription Value & Loyalty

Customer Loyalty Distribution

Loyal (>20 Purchases) **3,116**

Returning (6-20) **701**

New (<=5) **83**

Subscription Revenue

- **Non-Subscribers:** $170,436

- **Subscribers:** $62,645

- **Insight:** Both groups average **$59** per purchase.

Repeat Buyer Subscription:

Among repeat buyers (>5 purchases), **2,518** are non-subscribers vs. **958** subscribers.

Quantified Insight 3: Product Rating & Discounts

Top 5 Products by Avg Rating

Product	Avg. Rating
Gloves	3.86
Sandals	3.84
Boots	3.82
Hat	3.80
Handbag	3.78

Highest Discount Dependency

Hat	**50%**
Sneakers	**49.66%**
Coat	**49.07%**

Accessories and footwear are highly price-elastic, with nearly half of all purchases requiring a discount.

Data Preprocessing & Feature Engineering

Data Cleaning and Consistency

- Handled **37** missing values in `Review Rating` via median imputation.

- Removed `Promocode Used` column due to redundancy.

- Standardized column names for SQL compatibility.

High-Value Feature Creation

Age_Groups
Categorizing customers into demographic segments.

Purchase_Frequency_Days
Analyzing time intervals between customer purchases.

Conclusion & Strategic Recommendations

Key Takeaways

- **Marketing Focus:** Male customers (who generate **$157,890**) are the primary revenue driver, but the female segment (**$75,191**) presents a significant growth opportunity.

- **Subscription Strategy:** The average purchase value is identical ($59) for subscribers and non-subscribers. Focus marketing efforts on converting the **2,518** repeat non-subscribers by linking loyalty status to subscription value.

- **Product Optimization:** Products like Gloves and Sandals have high ratings, while price-elastic items like the Hat (**50% discount rate**) require careful margin management.

Thank You | Questions & Discussion

The full interactive dashboard is available for dynamic exploration of these insights.