Customer Shopping Behavior Analysis

Uncovering Strategic Insights from Transactional Data

An analysis of 3,900 purchases to guide key business decisions.

Project Overview & Methodology

This project analyzes 3,900 customer transactions to uncover patterns in spending, product preferences, and subscription behavior. Our goal is to derive actionable insights for strategic growth.

Our Process

Data Preparation (Python)

Cleaned and prepared the dataset, handled missing values, and engineered new features like age groups for deeper analysis.

Data Analysis (SQL)

Loaded the clean data into a PostgreSQL database and ran structured queries to answer key business questions.
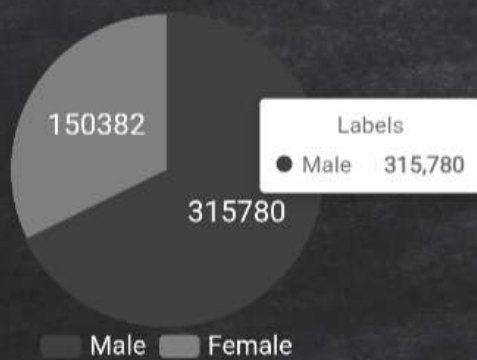
Visualization (Power BI)

Developed an interactive dashboard to visually represent key findings and empower ongoing exploration.

Insight 1: Who Are Our Customers?

Revenue by Gender

150382

315780

Labels	
● Male	315,780

Male   Female

Customer Segmentation

83

701

3116

Loyal   Returning   New

Insight 2: What Are They Buying?

Top 5 Products by Rating

1. Gloves

Avg. Rating: 3.86

2. Sandals

Avg. Rating: 3.84

3. Boots

Avg. Rating: 3.82

**4. Hat**

Avg. Rating: 3.80

5. Skirt

Avg. Rating: 3.78

Top Selling Products

Category	Top Item	Total Orders
Accessories	Jewelry	342
Clothing	Blouse	342
Footwear	Sandals	320
Outerwear	Jacket	326

Insight 3: Who is Driving Revenue?

Revenue Contribution by Age Group

The 'Senior' and 'Adult' age groups are the most significant contributors to total revenue, making them high-value segments for targeted marketing.
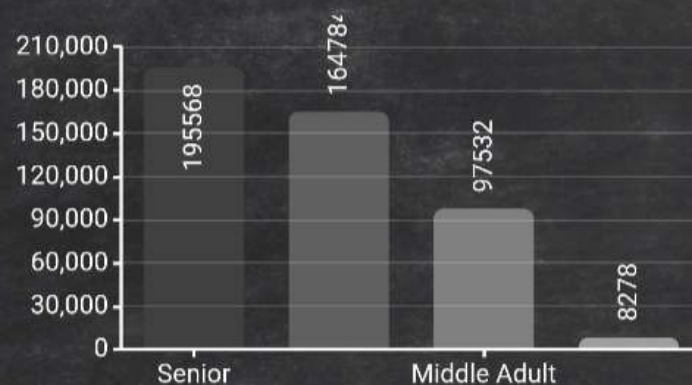
# Insight 4: Subscription & Discount Impact

Subscriber Spending

Surprisingly, subscribers and non-subscribers have nearly identical average spending per purchase. However, non-subscribers generate significantly more overall revenue due to their larger number.

- Non-Subscriber Avg Spend: $59.87
- Subscriber Avg Spend: $59.49

Discount-Reliant Products

Certain products, particularly hats and sneakers, are heavily purchased with discounts, suggesting a high price sensitivity for these items.
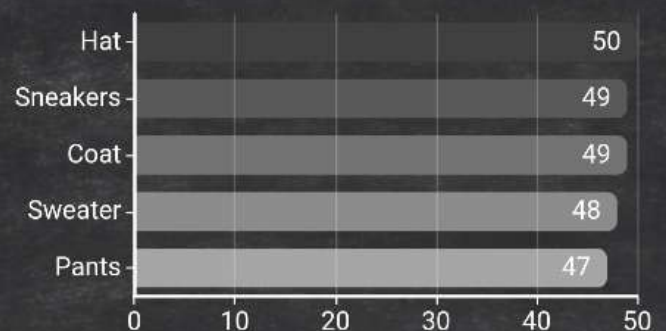
Strategic Business Recommendations

1
Target High-Value Segments

Focus marketing campaigns on 'Senior' and 'Adult' age groups, who are the highest revenue contributors. Tailor messaging to their preferences.

2
Enhance Subscription Value

Since average spend is similar, boost the subscription program with exclusive benefits (e.g., free shipping, early access) to increase adoption and long-term value.

3
Implement a Customer Loyalty Program

Nurture the large 'Returning' customer segment to convert them into 'Loyal' customers through a rewards system for repeat purchases.

4
Optimize Discount Strategy

Review the discount policy for products like hats and coats. Consider alternative promotions to balance sales volume with profit margins.

5
Leverage Product Insights

Prominently feature top-rated products (Gloves, Sandals) and best-sellers (Jewelry, Blouse) in marketing materials and on the website.

Conclusion & Next Steps

Key Takeaways

- Male customers and older age groups are our primary revenue drivers.
- Our customer base is highly loyal, presenting an opportunity for upselling.
- The subscription program needs stronger value propositions to drive growth.
- Discounts heavily influence sales of specific product categories.

Path Forward

Utilize the interactive Power BI dashboard for continuous monitoring of these key metrics and to explore trends in real-time.