

Customer Shopping Behaviour Analysis

A project report analyzing transactional data from nearly 4,000 purchases to uncover insights into purchase patterns, customer segments, and product preferences.





Project Overview & Data Foundation

The goal is to guide strategic business decisions by understanding customer shopping behavior across various product categories.

Key Data Fields

- Customer ID, Age, Gender, Location
- Item Purchased, Category, Purchase Amount (USD)
- Size, Color, Season, Review Rating
- Subscription Status, Discount Applied, Promo Code Used
- Previous Purchases, Frequency of Purchases

Data Cleaning Steps

01

Handled Missing Data

02

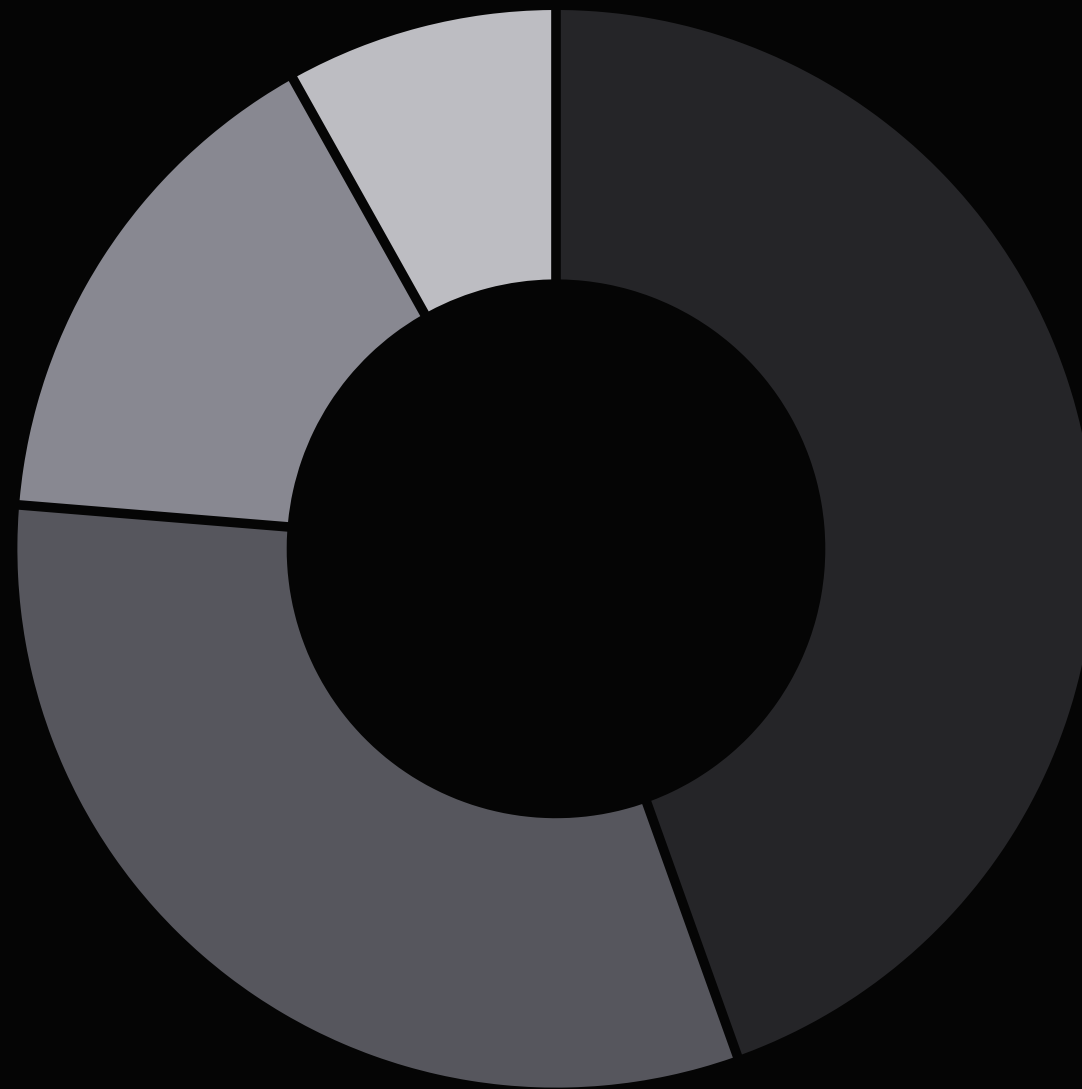
Renamed Columns

03

Feature Engineering

Category Performance Breakdown

Analysis of total sales by category reveals the primary revenue drivers for the business.



■ Clothing

■ Accessories

■ Footwear

■ Outerwear

Clothing dominates with 44.73% of overall sales, followed by Accessories (31.83%).

Product Performance: Profit vs. Loss

Comparing individual product sales against the average sales (\$9,323) to identify top and underperforming items.

Top Performers (Profit)

- Blouse: +\$1,087
- Pants: +\$767
- Belt: +\$312
- Scarf: +\$238

Underperformers (Loss)

- Jeans: -\$1,775
- Backpack: -\$687
- Hoodie: -\$556
- Boots: -\$305



Customer Segmentation by Purchase History

Customers are segmented based on their total previous purchases, revealing a large VIP base.

3,192

VIP Customers

Previous purchases \geq

10. This group represents the vast majority of the customer base.

371

Regular Customers

Previous purchases \geq **5**.
A significant group for retention efforts.

337

New Customers

Previous purchases $<$ **5**.
Focus for initial engagement and loyalty programs.





Top Products Within Each Category

Identifying the top 3 most purchased products in Clothing, Accessories, Footwear, and Outerwear.

1

Clothing

- Pants (171 sales)
- Blouse (171 sales)
- Shirt (169 sales)

2

Accessories

- Jewelry (171 sales)
- Sunglasses (161 sales)
- Belt (161 sales)

3

Footwear

- Sandals (160 sales)
- Shoes (150 sales)
- Sneakers (145 sales)

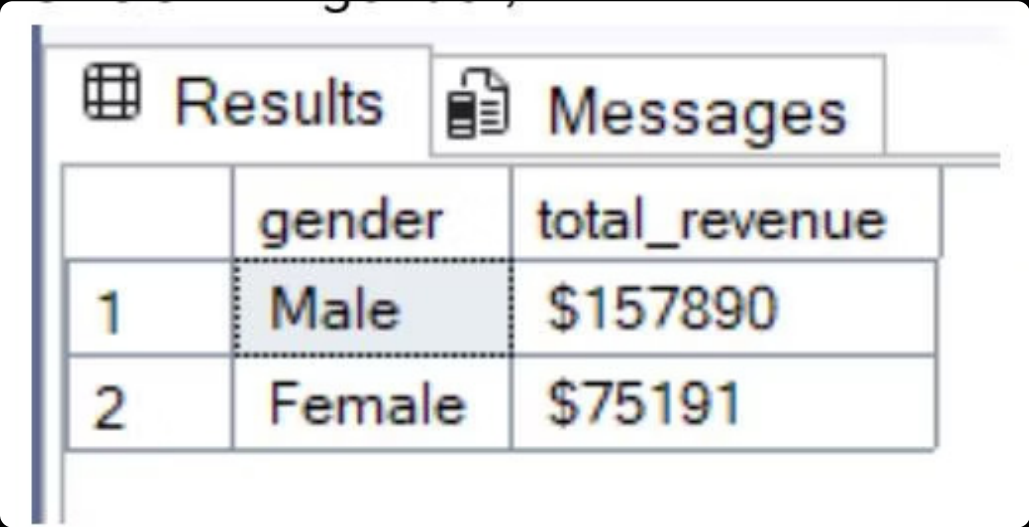
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Outerwear

- Jacket (163 sales)
- Coat (161 sales)

Gender and Age Group Revenue Contribution

Revenue by Gender

A screenshot of a data table interface. At the top, there are two tabs: 'Results' (active) and 'Messages'. Below the tabs is a table with three columns: an index column, a 'gender' column, and a 'total_revenue' column. The table contains two rows: Row 1 shows 'Male' with a total revenue of '\$157890', and Row 2 shows 'Female' with a total revenue of '\$75191'.

	gender	total_revenue
1	Male	\$157890
2	Female	\$75191

Female customers generate slightly higher total revenue than male customers.

Revenue by Age Group

Age Group	Total Revenue
Young Adult	\$62,143
Middle Aged	\$59,197
Adult	\$55,978
Senior	\$55,763

Young Adults contribute the highest total revenue.

Impact of Discounts and Shipping

Discounted High Spenders

15 customers used a discount but still spent the maximum purchase amount of \$100 (above the average purchase amount).

Discounted Product Focus

Hats (50%), Coats (49%), and Sneakers (49%) have the highest percentage of purchases with a discount applied.

Shipping Type Comparison

Results			Messages	
	shipping_type	avg_purchase_amount		
1	Express	\$60		
2	Standard	\$58		

Average purchase amounts are similar for Standard and Express shipping types.

Subscription Status and Spending Habits

Analyzing whether subscription status correlates with higher spending and purchase frequency.

Subscriber Spending

Subscribers (Yes)

Average Spend: **\$59**

Total Revenue: **\$62,645**

Non-Subscribers (No)

Average Spend: **\$59**

Total Revenue: **\$170,436**

Average spend is identical, but non-subscribers contribute higher total revenue due to volume.

Subscription Likelihood

For customers with **more than 5 previous purchases**:

- Subscribed: 2,755 customers
- Not Subscribed: 1,145 customers

Customers with higher previous purchases are significantly more likely to subscribe.



Top Products by Average Review Rating

The top 5 products based on customer satisfaction ratings.

1 Gloves

Average Rating: 3.86

2 Sandals

Average Rating: 3.84

3 Boots

Average Rating: 3.82

4 Hat

Average Rating: 3.80

5 Skirt

Average Rating: 3.78