

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
transaction

4

Categories

Product segments

50

Locations

Geographic coverage

An illustration of a desk setup. On the left, a large green plant with broad leaves is partially visible. In the center, a computer monitor displays a code editor with syntax-highlighted text. Below the monitor is a keyboard and a mouse. To the right of the monitor is a small potted plant. The background is a warm, yellowish-orange gradient with soft shadows.

Data Preparation Journey

01

Data Loading & Exploration

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

02

Missing Data Handling

Imputed Review Rating nulls using median by category

03

Feature Engineering



Created `age_group` bins and `purchase_frequency_days` columns

04

Database Integration

Connected to MySQL for advanced business analysis

Revenue by Gender



Result Grid					Filter Rows:
	gender	total_revenue			
▶	Male	157890			
	Female	75191			

Key Finding

Male customers generate higher total revenue, but both segments show strong purchasing power


Strategic focus on gender-specific campaigns can maximize returns

Customer Insights

Result Grid  Filter Rows: <input type="text"/> Export: 				
	customer_id	gender	discount_applied	purchase_amount
▶	2	Male	Yes	64
	3	Male	Yes	73
	4	Male	Yes	90
	7	Male	Yes	85
	9	Male	Yes	97
	12	Male	Yes	68
	13	Male	Yes	72
	16	Male	Yes	81
	20	Male	Yes	90


High-Spending Discount Users

Customers using discounts still spend above average

Result Grid  Filter Rows: <input type="text"/>		
	item_purchased	avg_product_rating
▶	Gloves	3.86
	Sandals	3.84
	Boots	3.82
	Hat	3.8
	Handbag	3.78

Top-Rated Products

5 products with highest review ratings identified

Result Grid  Filter Rows: <input type="text"/>		
	shipping_type	avg_purchase_amount
▶	Express	60.48
	Standard	58.46

Shipping Preferences

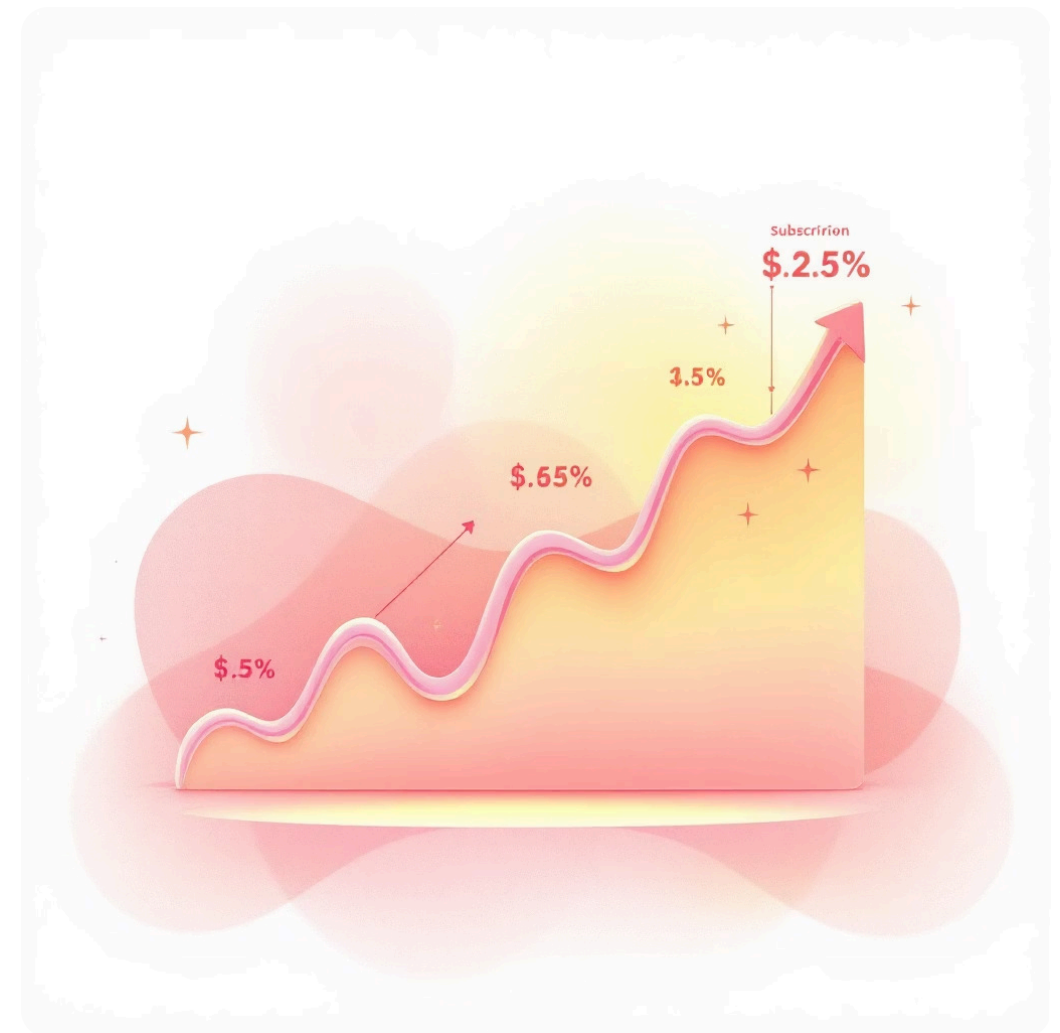
Express vs. Standard shipping purchase patterns

Subscription Impact

	subscription_status	total_customers	avg_spend	total_revenue
►	Yes	1053	59.49	62645
	No	2847	59.87	170436

Subscribers vs. Non-Subscribers

Average spend and total revenue comparison reveals subscription value



Product & Discount Analysis

Discount-Dependent Products

5 products with highest percentage of discounted purchases

Top Products per Category

Most purchased items within each segment

Customer Segmentation



New Customers

First-time buyers entering the funnel



Returning Customers

Repeat purchasers building habits



Loyal Customers

High-value advocates

Result Grid			Filter Rows:
	customer_segment	total_counts	
▶	Loyal	3116	
	Returning	701	
	New	83	

Key Customer Insights

Subscription Rates & Repeat Purchases

Result Grid			Filter Rows:
	subscription_status	repeat_buyers	
▶	Yes	958	
	No	2518	

Repeat buyers with 5+ purchases show higher subscription rates

Revenue Contribution by Age

Result Grid			Filter Rows:
	age_group	total_revenue	
▶	Senior	55763	
	Adult	55978	
	Middle-aged	59197	
	Young Adult	62143	

Revenue contribution varies significantly across age groups

Customer Behavior Dashboard

Subscription Status

☐ No ☐ Yes

Gender

☐ Female ☐ Male

Category

Shipping Type

☐ 2-Day Shipping

☐ Express

☐ Free Shipping

☐ Next Day Air

☐ Standard

☐ Store Pickup

3.9K

Number of Customers

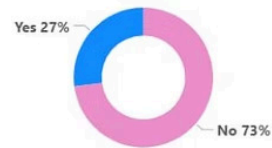
\$60

Average Purchase Amount

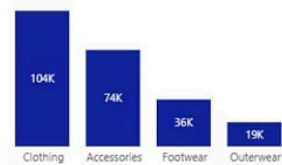
3.75

Average Review Rating

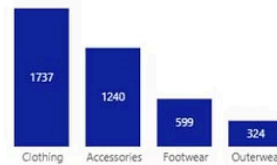
% of Customers by Subscription Status



Revenue by Category



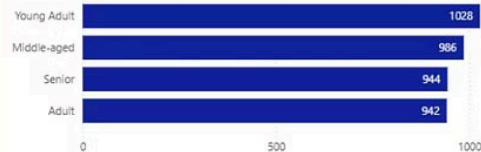
Sales by Category



Revenue By Age Group



Sales by Age Group



Power BI Dashboard

Interactive visualization bringing all insights together—transforming raw data into actionable intelligence for smarter business decisions

Strategic Recommendations

1

Boost Subscriptions

Promote exclusive benefits to convert high-frequency buyers

2

Loyalty Programs

Reward repeat buyers to accelerate movement into "Loyal" segment

3

Review Discount Policy

Balance sales growth with margin protection

4

Product Positioning

Highlight top-rated and best-selling items in campaigns

5

Targeted Marketing

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