RETAIL SALES overview

0,868
Sales

1,369
Quantity

0
Cost

COMPARE TO VOIDED AMOUNT

Monthly Performanc
● Sales ● Cost ● Profit

10K

0K

May   Jun   Jul   Aug   Sep   Oct

Jan   Feb   Mar

Sales by Tender Type
● Cash ● Customer Account ● Cards

62K

6.66K (8.24%)

20.97K (25.93%)

53.24K (65.83%)

Customer Shopping Behavior Analysis

by Prasad Nikam

End-to-end analytics project uncovering actionable insights from 3,900 retail transactions to drive data-driven decision-making.
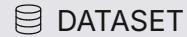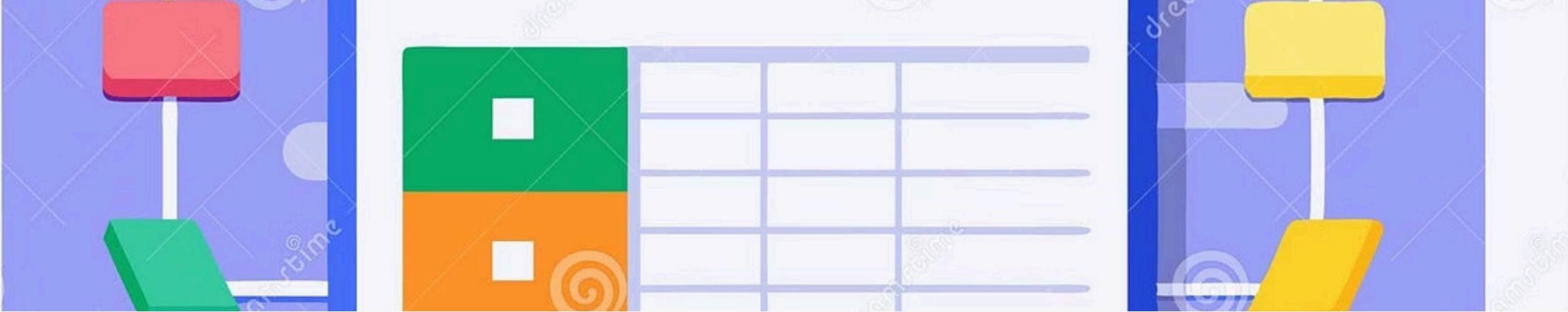
The Problem We Solved

The Challenge

Retail organisations struggle to understand customer purchasing patterns, discount effectiveness, and revenue drivers—leading to inefficient marketing spend and missed opportunities.

Our Approach

Analysed 3,900 transactions using Python, PostgreSQL, and Power BI to identify purchasing trends, customer segments, and high-performing products.

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DATASET

Data Foundation

3,900
Transactions
Customer purchase records analysed

18
Data Points
Attributes per transaction

37
Missing Values
Only in review ratings (imputed)

Comprehensive retail data covering customer demographics, purchase details, and behavioural attributes including age, gender, location, subscription status, product categories, discounts, and review ratings.

Technical Workflow

Data Preparation

Python for cleaning, feature engineering, and exploratory analysis

SQL Analysis
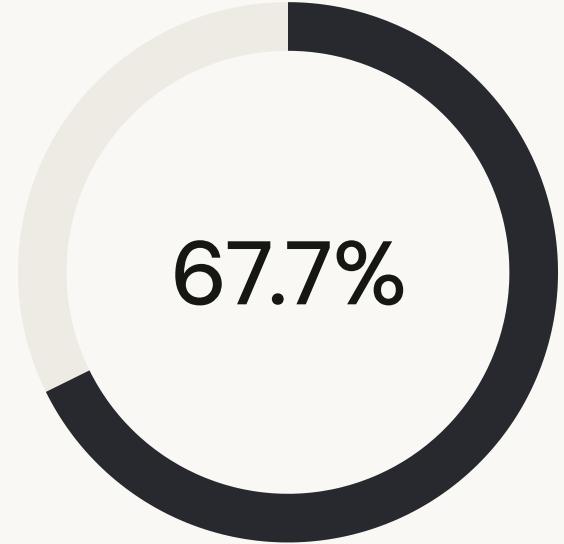
PostgreSQL for structured business querying

Visualisation

Power BI for interactive dashboards

Created age groups (Young Adult, Adult, Middle-Aged, Senior) and purchase frequency metrics. Standardised column names and validated data types for consistency.

Revenue Insights by Gender

■ Male ■ Female

67.7%

Male Revenue

Male customers contribute more than double the revenue. Female segment presents growth opportunity through targeted promotions.

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Top-Rated Products

Gloves

Rating: 3.86

Sandals

Rating: 3.84

### Boots

Rating: 3.82

Hat
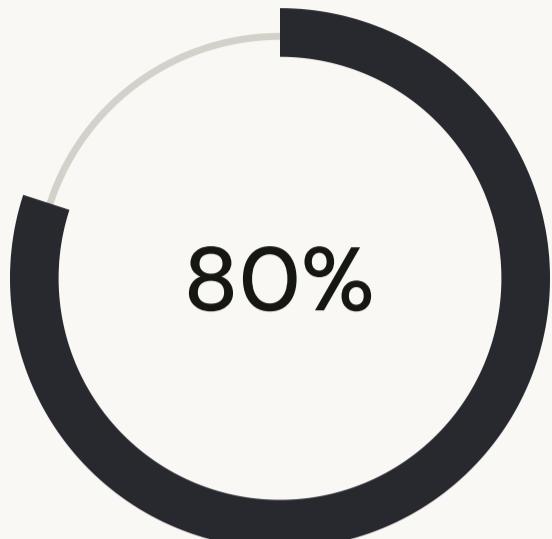
Rating: 3.80

Skirt

Rating: 3.78
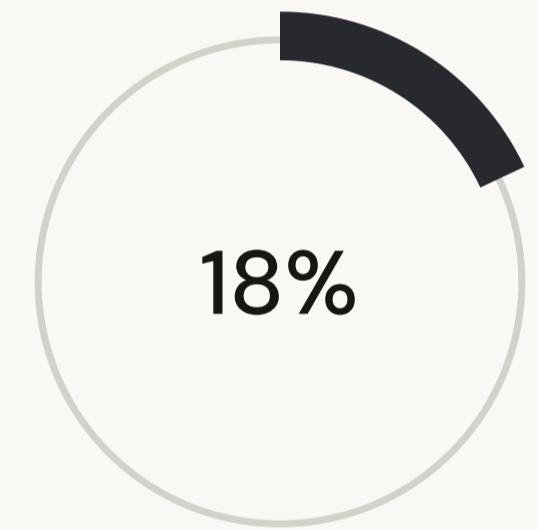
Consistently high ratings (>3.7) indicate strong customer satisfaction. These quality leaders should be highlighted in marketing campaigns and bundled with lower-rated products.

Customer Segmentation Analysis

80%
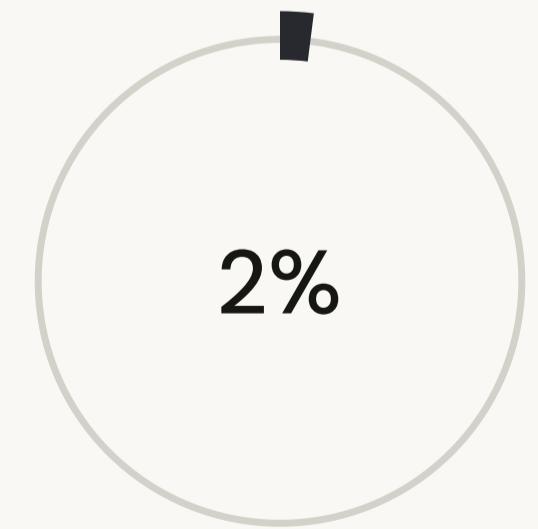
Loyal Customers

3,116 customers

18%

Returning

701 customers

2%

New
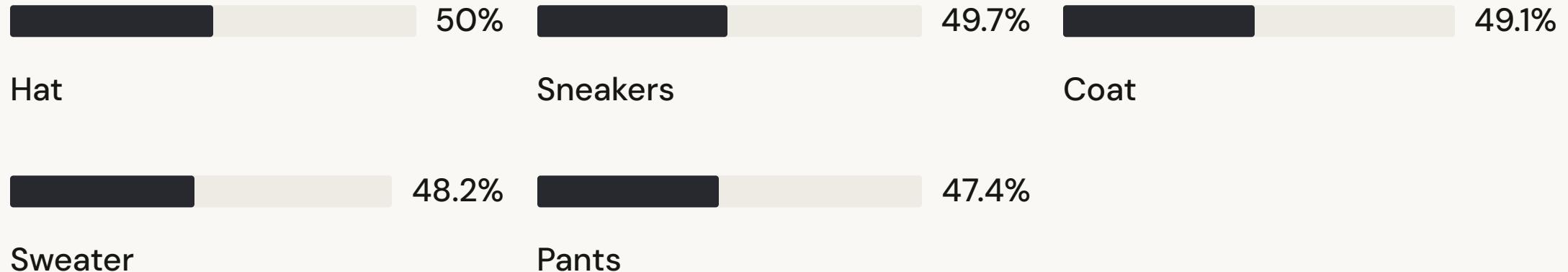
83 customers

Key Finding

Strong retention with 80% loyal customers, but weak acquisition. Only 2% are new customers.

Action Required
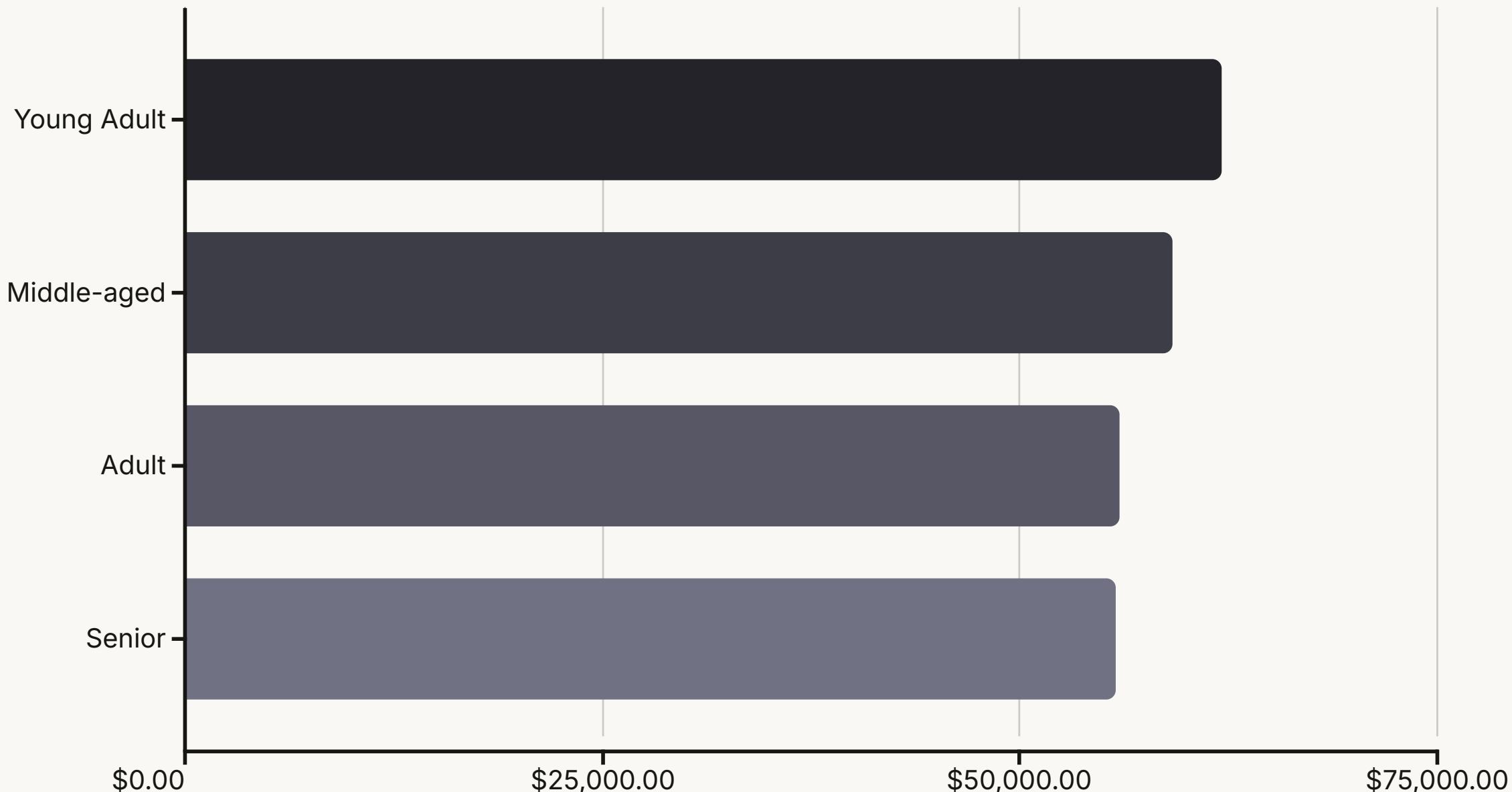
- Invest in customer acquisition campaigns
- Retain loyal customers through rewards programmes
- Convert returning buyers to subscribers

Discount Dependency Patterns

50%	**49.7%**	**49.1%**
Hat	Sneakers	Coat
48.2%	**47.4%**	
Sweater	Pants	

Critical Insight: 839 customers used discounts yet spent above average. These value-seeking, high-value customers respond well to offers without reducing basket size. Offer personalised premium discounts rather than removing discounts entirely.

Revenue by Age Group

Young adults generate the highest revenue, with gradual decrease across age groups. Express shipping users spend 3.5% more per transaction (₹60.48 vs ₹58.46).

Strategic Focus: Target marketing towards young and middle-aged segments whilst using tailored messaging for seniors. Promote express shipping for high-value customers.

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Strategic Actions

1

Boost Subscriptions

Promote exclusive benefits to convert returning customers. Subscriptions underutilised despite potential.

2

Loyalty Programmes

Reward repeat buyers to strengthen retention amongst the 80% loyal customer base.

3

Optimise Discounts

Balance discount usage to protect margins. Introduce value bundles instead of direct discounts.

4

Targeted Marketing

Focus on high-revenue segments: male, young adult, and express shipping users.

5

Customer Acquisition

Invest in new customer campaigns to address the weak 2% new customer rate.