



Retail Customer Analytics

Unlocking insights from customer behaviour data.

Executive Summary

Customer Behavior

Identify purchasing patterns and high-value segments.

Global Market

Understand varied customer requirements across markets.

Interactive Dashboard

Power BI for improved decision-making and visual clarity.



Data Overview

Dataset: 3,900 transactions, 18 columns, 4 product categories.

- Clothing
- Accessories
- Footwear
- Outerwear

37 missing values in "Review Rating" handled.



Key Data Features



Customer Demographics

Age, Gender, Location, Subscription Status



Purchase Details

Item, Category, Amount, Season, Size, Color

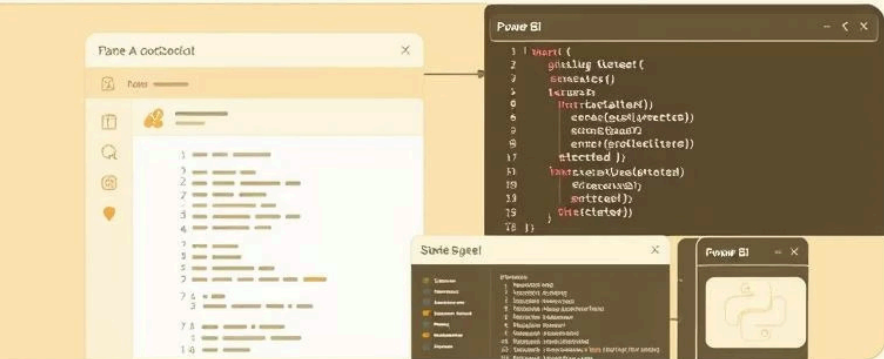
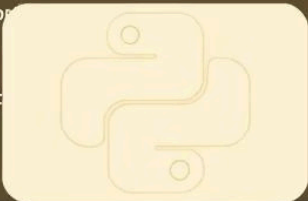


Shopping Behavior

Discount, Promo, Previous Purchases, Frequency, Review, Shipping



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Tools & Technologies



Python (Google Colab)

Data exploration, cleaning, preprocessing.



PostgreSQL

Cleaned data storage and SQL analysis.



Power BI

Interactive dashboards, visual findings.

Data Cleaning & Preparation

01

Import & Initial View

Pandas for dataset import and `df.head()` for structure.

02

Handle Missing Values

Median review rating by category to fill nulls.

03

Standardize & Engineer

Snake_case renaming, `age_group` and `frequency_purchases` creation.

04

Ensure Consistency

Dropped `promo_code_used` due to redundancy.

05

SQL Preparation

Exported to CSV for PostgreSQL import.

SQL Data Analysis

Revenue by Gender

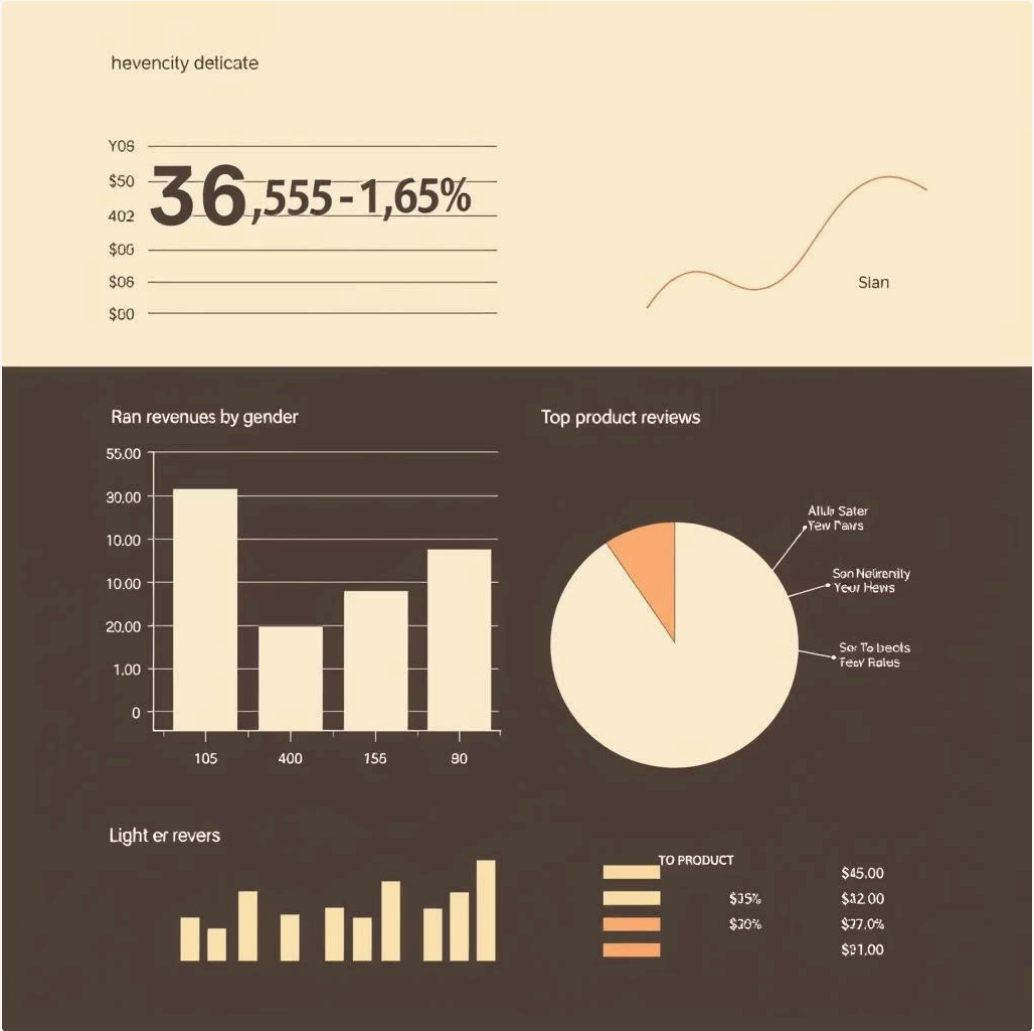
Female: \$75,191 | Male: \$157,890

Top 5 Products by Review

Gloves, Sandals, Boots, Hat, Skirt (highest average ratings)

Shipping Type Spend

Standard: \$58.46 | Express: \$60.48





Carting Reset



Customer Insights from SQL

1

Subscribers vs. Non-Subscribers

Non-subscribers have higher total revenue (\$170,436) but similar average spend.

2

Discounted Purchases

Hat (50%), Sneakers (49%), Coat (49%) have highest discount rates.

3

Customer Segmentation

Loyal (3116), Returning (701), New (83) customers identified.

4

Repeat Buyers & Subscriptions

Customers with >5 purchases: 958 subscribed, 2518 not subscribed.

Interactive Power BI Dashboard

Visualizing key metrics and trends.



Customers



Avg. Purchase



Avg. Review



Business Recommendations

→ Target Young Adults

Highest purchase amount, focus marketing here.

→ Boost Subscriptions

Subscribers spend more; aggressive promotion needed.

→ Reward Loyalty

Exclusive rewards for Loyal/Returning customers.

→ Clothing Discounts

Strategic offers to attract new customers and increase repeat purchases.