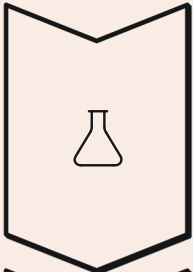




Customer Sales Behaviour Analysis

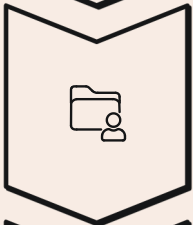
A comprehensive data analysis project exploring customer purchasing patterns through Python, SQL, and Power BI visualization.

Project Workflow



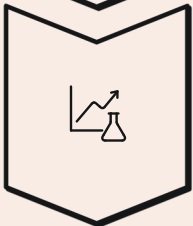
Python Analysis

Data loading, EDA, feature engineering, and PostgreSQL export



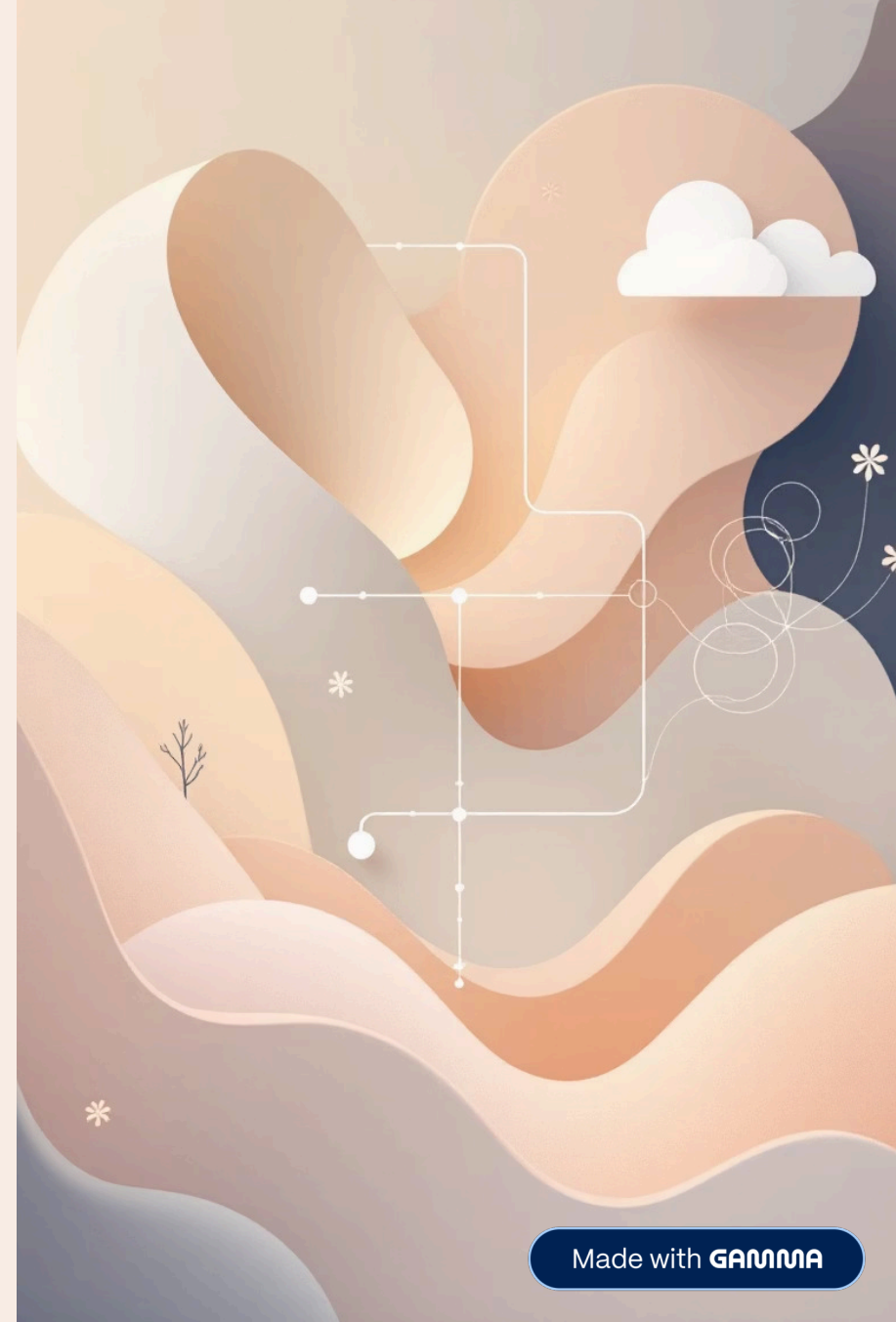
SQL Queries

Advanced queries to extract meaningful business insights



Power BI

Interactive dashboard creation for visual storytelling



Dataset Overview

3,900

Total Records

Customer transactions analyzed

18

Attributes

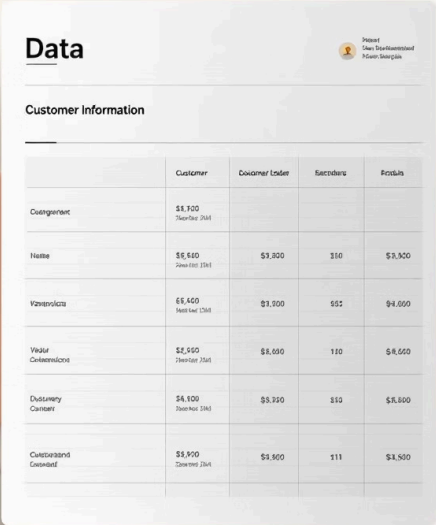
Data columns captured

37

Missing Values

In Review Rating column only

Dataset includes customer demographics, purchase details, shipping preferences, and behavioral patterns across multiple product categories.



The screenshot shows a data table with the following structure:

	Customer	Customer Order	Sections	Results
Customeer	\$1,700 Jenifer Jaki			
Heate	\$6,640 Jenifer Jaki	\$1,800	110	\$1,900
Vasipoliza	\$5,400 Jenifer Jaki	\$1,500	955	\$4,000
Vidul Gastemikine	\$2,500 Jenifer Jaki	\$1,090	110	\$4,000
Customer Cantary	\$4,100 Jenifer Jaki	\$5,320	110	\$4,800
Customer Gastemikine	\$1,900 Jenifer Jaki	\$1,800	111	\$1,900

Data Preparation & Cleaning

01

Data Loading

Imported customer shopping behavior CSV using pandas

02

Exploratory Analysis

Examined data structure, identified 37 null values in Review Rating

03

Null Value Treatment

Filled missing ratings with category-wise median values

04

Column Standardization

Converted to lowercase, replaced spaces with underscores for SQL compatibility

Feature Engineering

New Attributes Created

Age Group Segmentation

- Young Adult
- Adult
- Middle Aged
- Senior

Quartile-based customer age categorization

Purchase Frequency Days

Mapped frequency labels to numeric day intervals
(weekly=7, monthly=30, quarterly=90, annually=365)





Key SQL Insights

Revenue by Gender

Male customers: **\$157,890**

Female customers: **\$75,191**

Males generated 2.1x more revenue

Discount Behavior

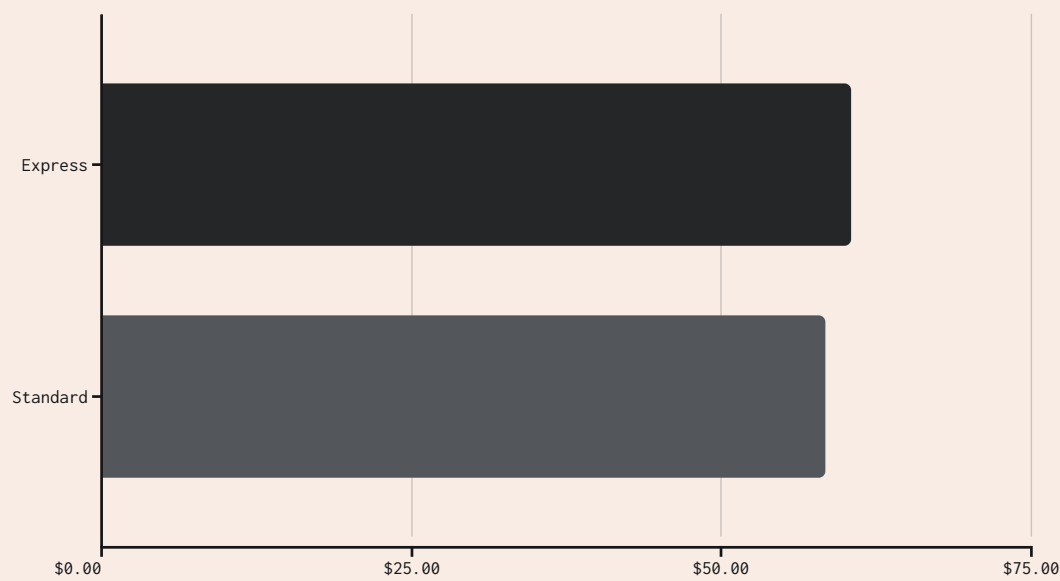
839 customers used discounts but still spent above average purchase amount

Top Rated Products

1. Gloves (3.86)
2. Sandals (3.84)
3. Boots (3.82)
4. Hat (3.80)
5. Skirt (3.78)

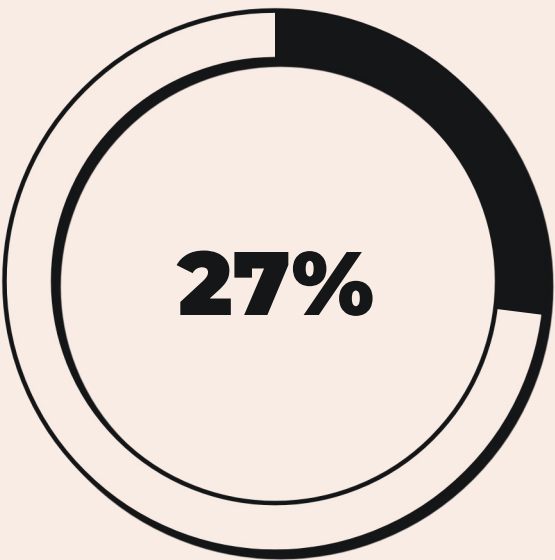
Shipping & Subscription Analysis

Shipping Type Comparison



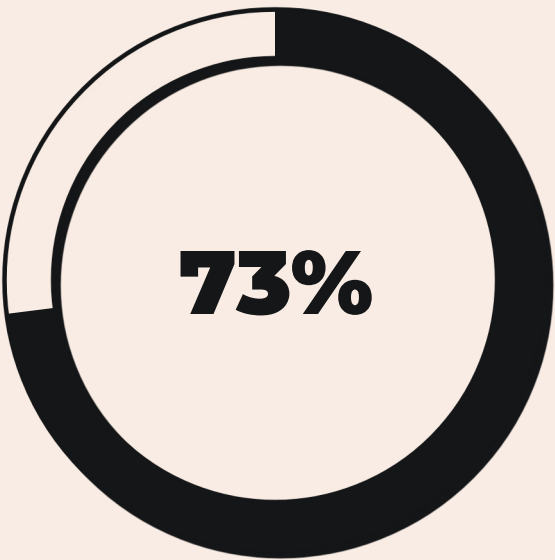
Express shipping customers spend slightly more on average

Subscription Impact



Subscribers

1,053 customers with \$62,645 revenue

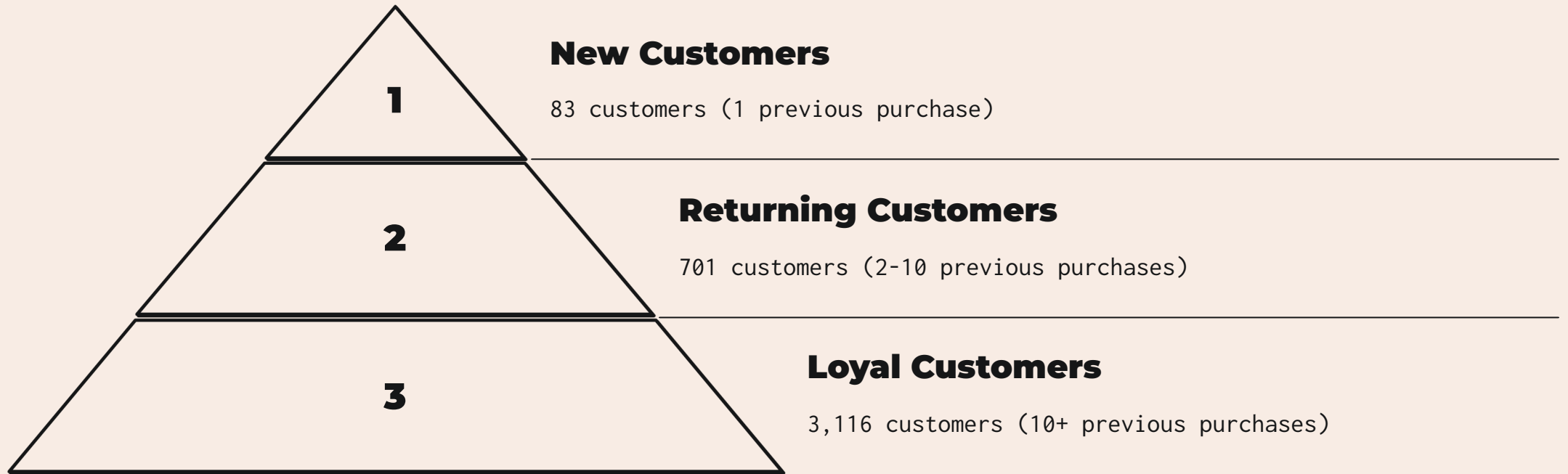


Non-Subscribers

2,847 customers with \$170,436 revenue

Non-subscribers generate higher total revenue despite similar average spend (\$59.87 vs \$59.49)

Customer Segmentation



The majority (80%) are loyal customers, indicating strong retention and repeat purchase behavior.

Power BI Dashboard Highlights

Interactive Visualizations

Revenue by subscription status, category breakdown, and gender analysis

Key Metrics

3.9K customers, 3.75 avg rating, \$3.08K total revenue tracked

Dynamic Filtering

Filter by gender, shipping type, and review ratings for deeper insights



Key Takeaways



Complete Data Pipeline

Successfully transformed raw data into actionable insights through Python cleaning, SQL analysis, and Power BI visualization



Customer Behavior Patterns

Identified revenue differences by gender, discount usage trends, and strong customer loyalty (80% repeat buyers)



Data-Driven Decisions

Interactive dashboard enables businesses to understand purchasing patterns and optimize marketing strategies