Customer Shopping Behavior Analysis

Uncovering insights from 3,900+ customer transactions across demographics, purchases, and shopping patterns

The Foundation

3,900

Total Rows

Customer transactions analyzed

18

Data Columns

Features tracked per customer

37

Missing Values

Found in Review Rating column

Demographics

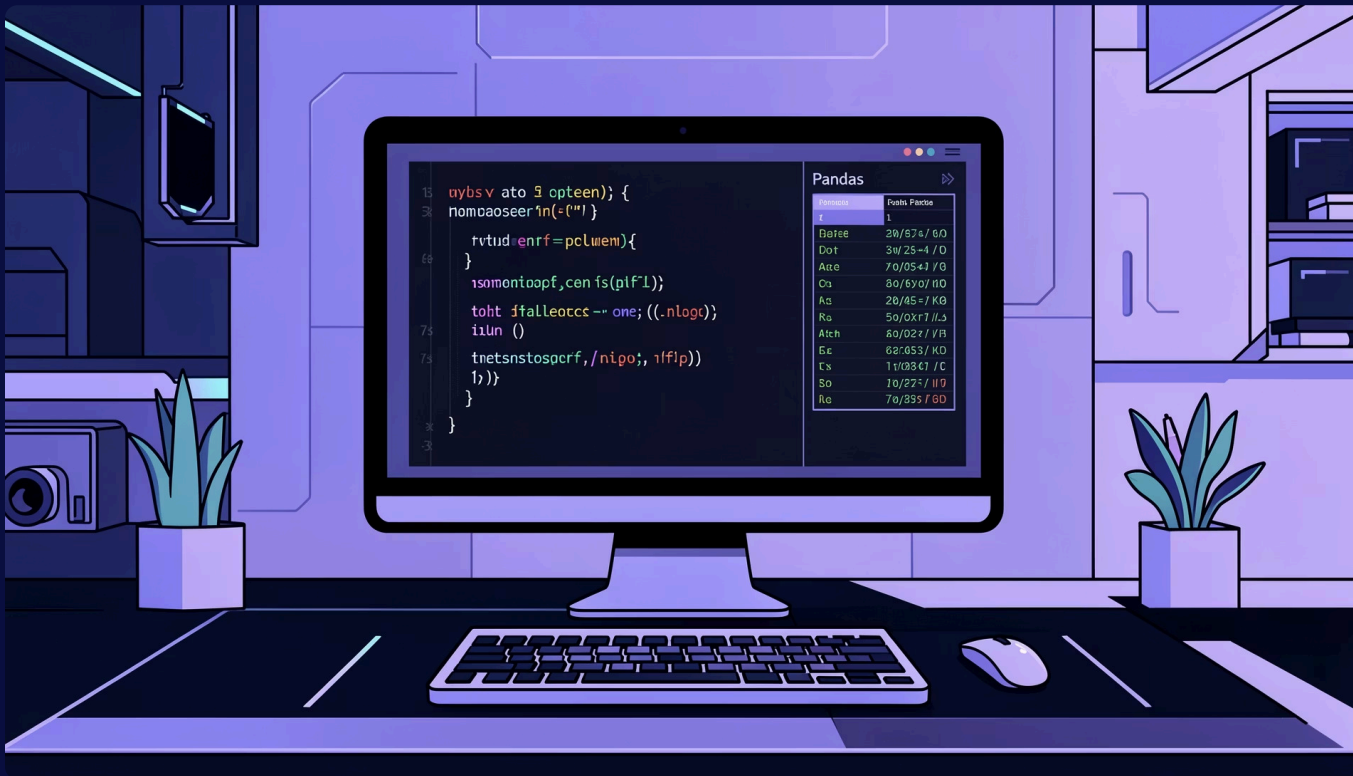Age, Gender, Location, Subscription Status

Purchase Details

Item, Category, Amount, Season, Size, Color

Shopping Behavior

Discounts, Promo Codes, Purchase Frequency, Reviews, Shipping

Data Preparation & Cleaning

01

Data Loading

Imported dataset using pandas

02

Initial Exploration

Used df.describe() and df.info() for overview

03

Handling Missing Data

Replaced 37 null values with category-specific means

04

Column Standardization

Renamed to snake_case for consistency

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Feature Engineering

Age Groups Created

Segmented customers: Youth Adults, Adults, Middle Age, Senior

Purchase Frequency

Calculated purchase_frequency_days from transaction data

Data Consistency

Verified redundancy, dropped promo_code_used column

Database Integration

Connected PostgreSQL for advanced SQL analysis

Key Business Questions

Revenue By Gender

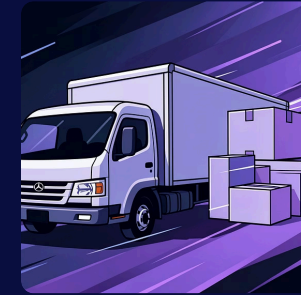Compared total revenue from male vs female customers

High-Spending Discount Users

Found customers using discounts but exceeding average spend
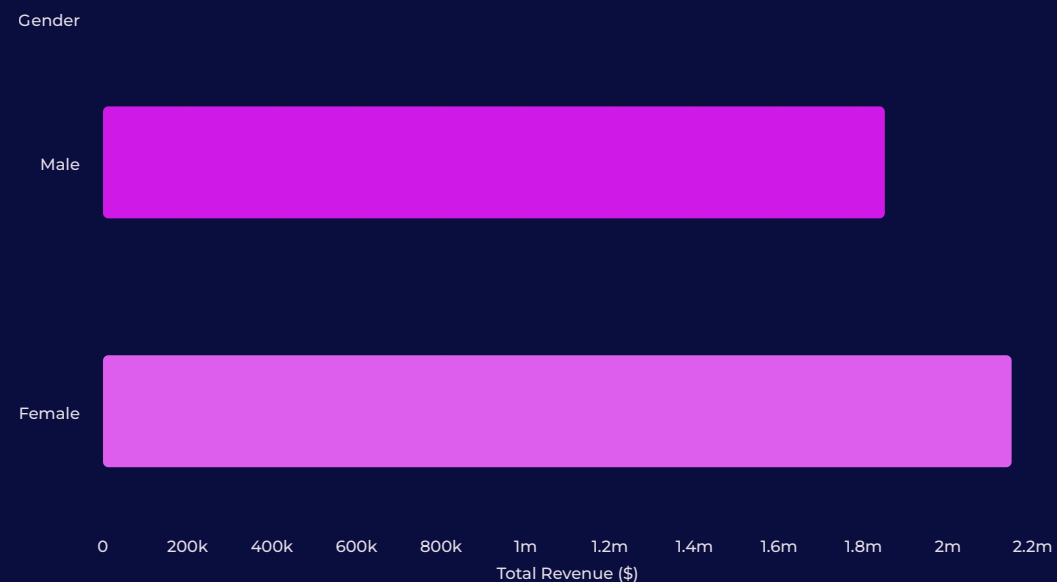
Top 5 Products By Rating

Identified products with highest average review ratings

Shipping Type Analysis

Compared spend and revenue across subscription status

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Revenue Insights

Gender

Male

Female

0   200k   400k   600k   800k   1m   1.2m   1.4m   1.6m   1.8m   2m   2.2m
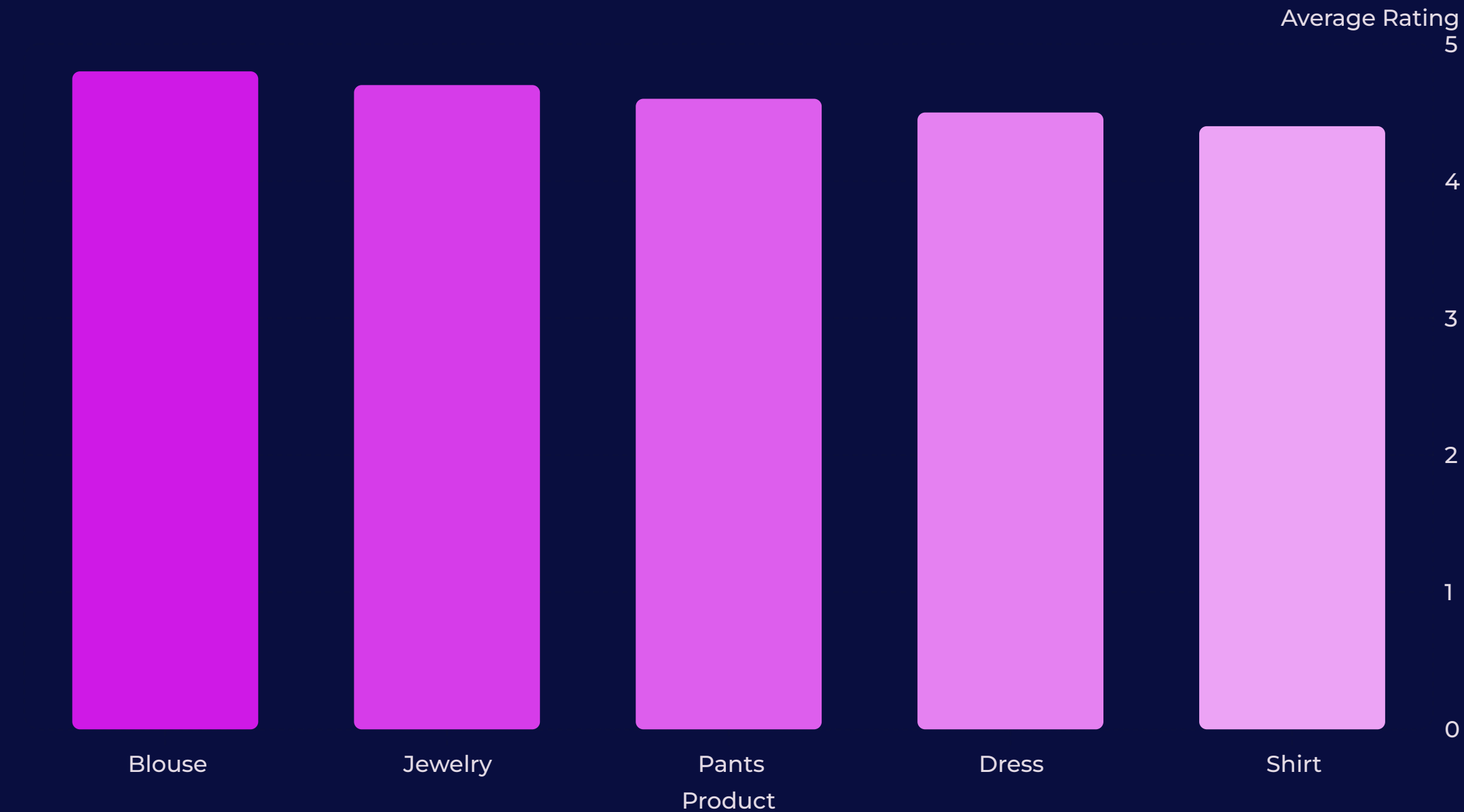
Total Revenue ($)

Gender Revenue Comparison

Female customers generate higher total revenue, representing a key demographic for targeted marketing campaigns.

Strategic Focus: Tailor product offerings and promotions to female customer preferences.

Top-Rated Products

Average Rating

5

4

3

2

1

0

Blouse   Jewelry   Pants   Dress   Shirt

Product

Products with highest customer satisfaction scores. Blouse and Jewelry lead with exceptional ratings above 4.7 stars.

Power BI Dashboard

Interactive visual analytics platform presenting key insights across customer segments, product performance, and revenue trends

Real-Time Metrics

Live tracking of sales and customer behavior

Dynamic Filtering

Drill down by age, category, season

Actionable Insights

Data-driven recommendations at a glance

Strategic Business Actions

Boost Subscriptions

Promote exclusive benefits for subscribers

Customer Loyalty Programs

Reward repeat buyers to build loyal segments

Review Discount Policy

Balance sales growth with margin control

Product Positioning

Highlight top-rated items in campaigns

Targeted Marketing

Focus on high-revenue age groups and express shipping users

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Key Takeaways

Data-Driven Decisions

3,900+ transactions analyzed across 18 features reveal clear customer patterns

Actionable Insights

Gender, age groups, and shipping preferences drive revenue opportunities

Growth Strategy

Focus on subscriptions, loyalty, and top-rated products for maximum impact