CUSTOMER SHOPPING BEHAVIOR ANALYSIS

Uncovering insights from **3,900 transactions** to drive smarter retail decisions

PROJECT OVERVIEW & DATASET

WHAT WE ANALYZED

3,900 purchase records across **18 dimensions** — from demographics to discount behavior

DEMOGRAPHICS

Age, gender, location, subscription

PURCHASE DETAILS
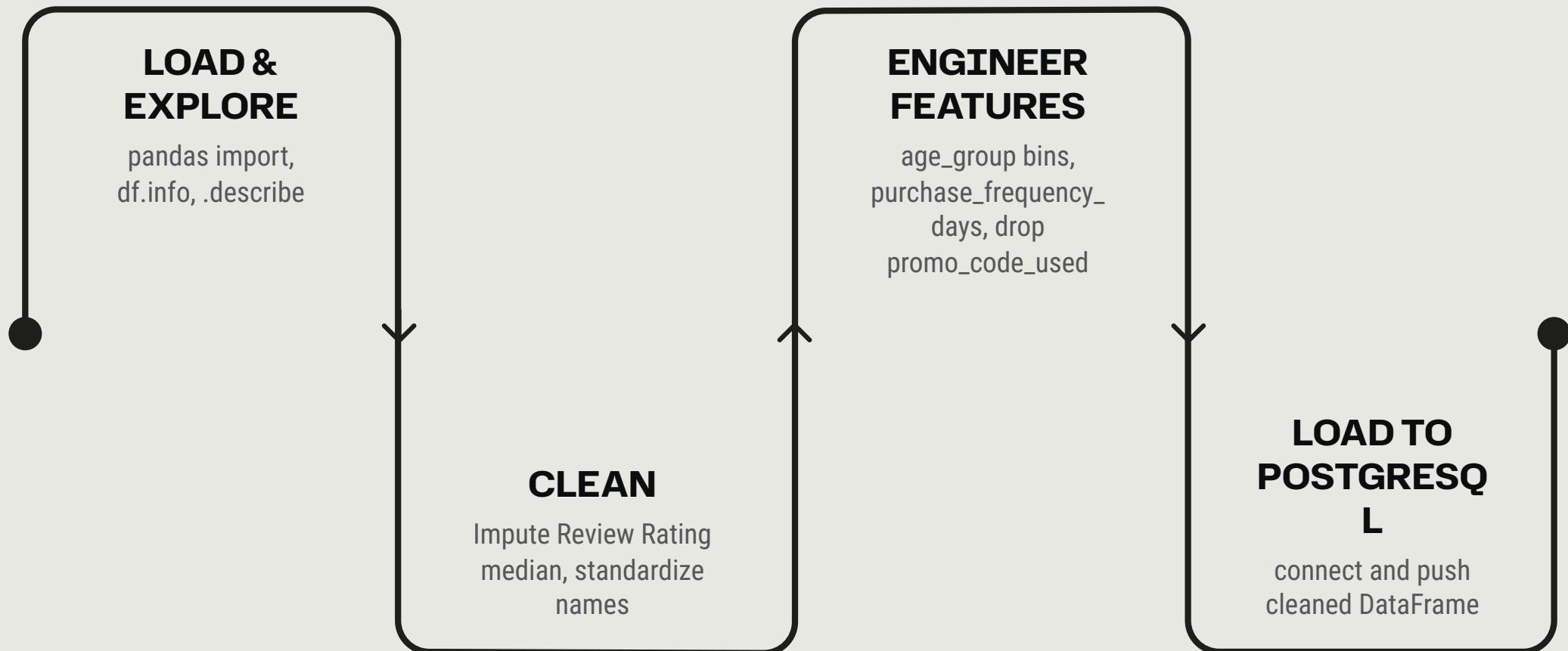
Item, category, amount, season

BEHAVIOR

Discounts, frequency, ratings, shipping

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FROM RAW DATA TO CLEAN INSIGHTS

Python-powered pipeline: loading, cleaning, engineering, and loading into PostgreSQL

LOAD & EXPLORE

pandas import, df.info, .describe

CLEAN

Impute Review Rating median, standardize names

ENGINEER FEATURES

age_group bins, purchase_frequency_days, drop promo_code_used

LOAD TO POSTGRESQL

connect and push cleaned DataFrame

37 missing values in Review Rating imputed using category-level medians

AT A GLANCE

3.9K
CUSTOMERS
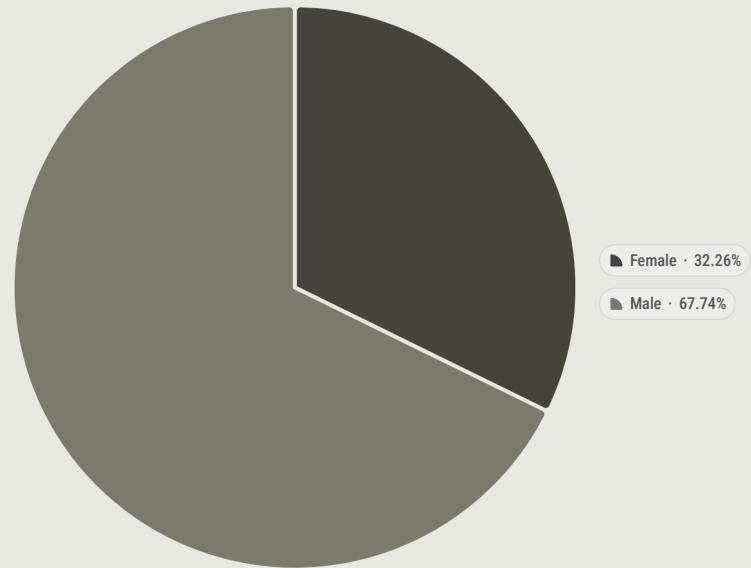
$59.76
AVG. PURCHASE

3.75
AVG. RATING

68%
MALE CUSTOMERS

Female · 32.26%

Male · 67.74%

REVENUE BY GENDER

Male customers generate **2.1×** the revenue of female customers — a $82K gap worth investigating

Male: $157,890 · Female: $75,191

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WHO ARE OUR CUSTOMERS?
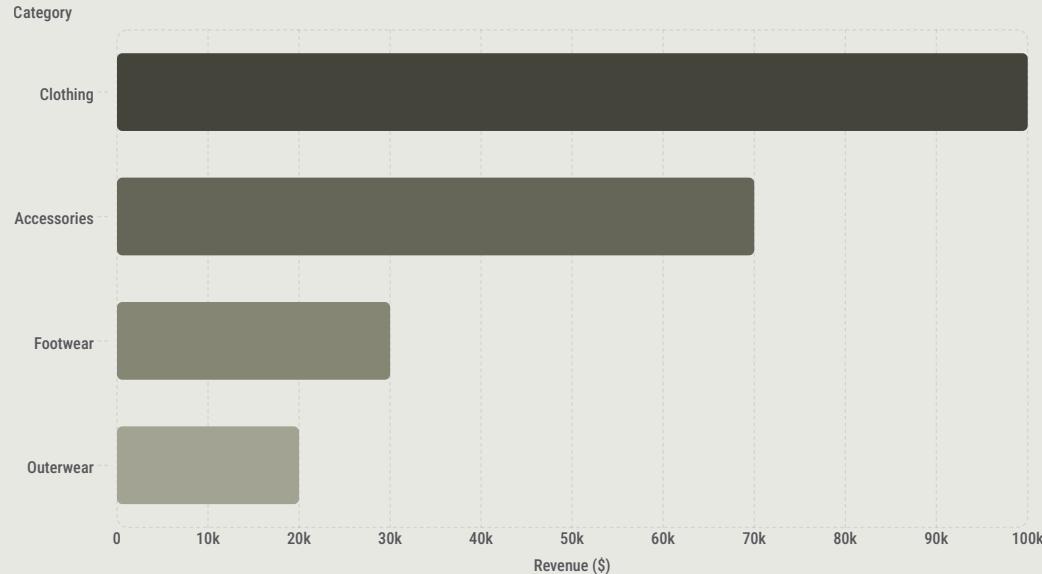
LOYAL	**RETURNING**
3,116 customers (80%)	701 customers (18%)

NEW	
83 customers (2%)	

Loyalty dominates — but **only 27% subscribe**. Massive conversion opportunity.

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CATEGORY REVENUE & TOP PRODUCTS

TOP RATED PRODUCTS
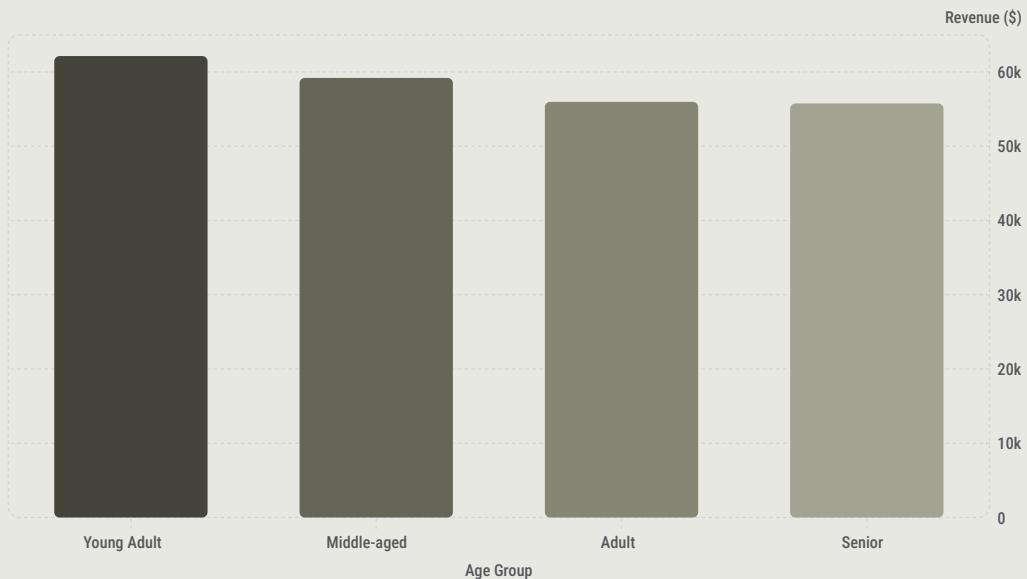
GLOVES ⭐ 3.86	SANDALS ⭐ 3.84
BOOTS ⭐ 3.82	HAT ⭐ 3.80
SKIRT ⭐ 3.78	

REVENUE BY AGE GROUP

Revenue ($)

Age Group

AGE INSIGHTS

Young Adults lead revenue at $62K — 11% more than Seniors

Avg. customer age: 44 years
Range: 18–70 years

Revenue is relatively flat across groups — opportunity to increase Senior & Adult spend

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DISCOUNT & SHIPPING BEHAVIOR

839 HIGH-SPEND DISCOUNT USERS

Spent above average ($59.76) even with discounts applied

TOP DISCOUNT-DEPENDENT ITEMS

Hat (50%), Sneakers (49.7%), Coat (49.1%), Sweater (48.2%)

EXPRESS VS. STANDARD

Express: $60.48 avg. · Standard: $58.46 avg. — $2 premium

Nearly half of Hat and Sneaker purchases use discounts — **margin risk** on these SKUs

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INTERACTIVE POWER BI DASHBOARD

Filterable by **subscription status**, **gender**, **category,** and **shipping type** for real-time exploration

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STRATEGIC RECOMMENDATIONS

1

BOOST SUBSCRIPTIONS

Only 27% subscribe — promote exclusive perks to convert the 73%

2

LOYALTY PROGRAMS

Reward Returning buyers to shift them into the Loyal segment

3

REVIEW DISCOUNT POLICY

50% discount rate on Hats & Sneakers — balance volume vs. margin

4

PRODUCT POSITIONING

Feature top-rated items (Gloves, Sandals, Boots) in campaigns

5

TARGETED MARKETING

Focus on Young Adults & express-shipping users for highest ROI

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