

Customer Shopping Trend Analysis

Uncovering actionable insights from 3,900 transactions across product categories, demographics, and purchasing behaviors



OVERVIEW

Project at a Glance

3,900

Total transactions analyzed

18

Data attributes tracked

3

Analysis phases: Python, SQL,
Power BI

Strategic goal: Transform raw transactional data into business intelligence for marketing, product strategy, and customer engagement decisions

Dataset Composition

Customer Demographics

- Age, gender, location
- Subscription status tracking

Purchase Details

- Product, category, amount
- Season, size, color preferences

Behavioral Indicators

- Discount usage, promo codes
- Review ratings, shipping choices
- Purchase frequency patterns

Data Preparation in Python

01

Import & Exploration

Loaded dataset with pandas, analyzed structure and summary statistics

02

Data Cleaning

Validated integrity, imputed review ratings where scores fell below 4.0

03

Feature Engineering

Created age_group bins and purchase_frequency_days for deeper segmentation

04

Standardization

Renamed columns to snake_case, removed redundant promo_code_used field

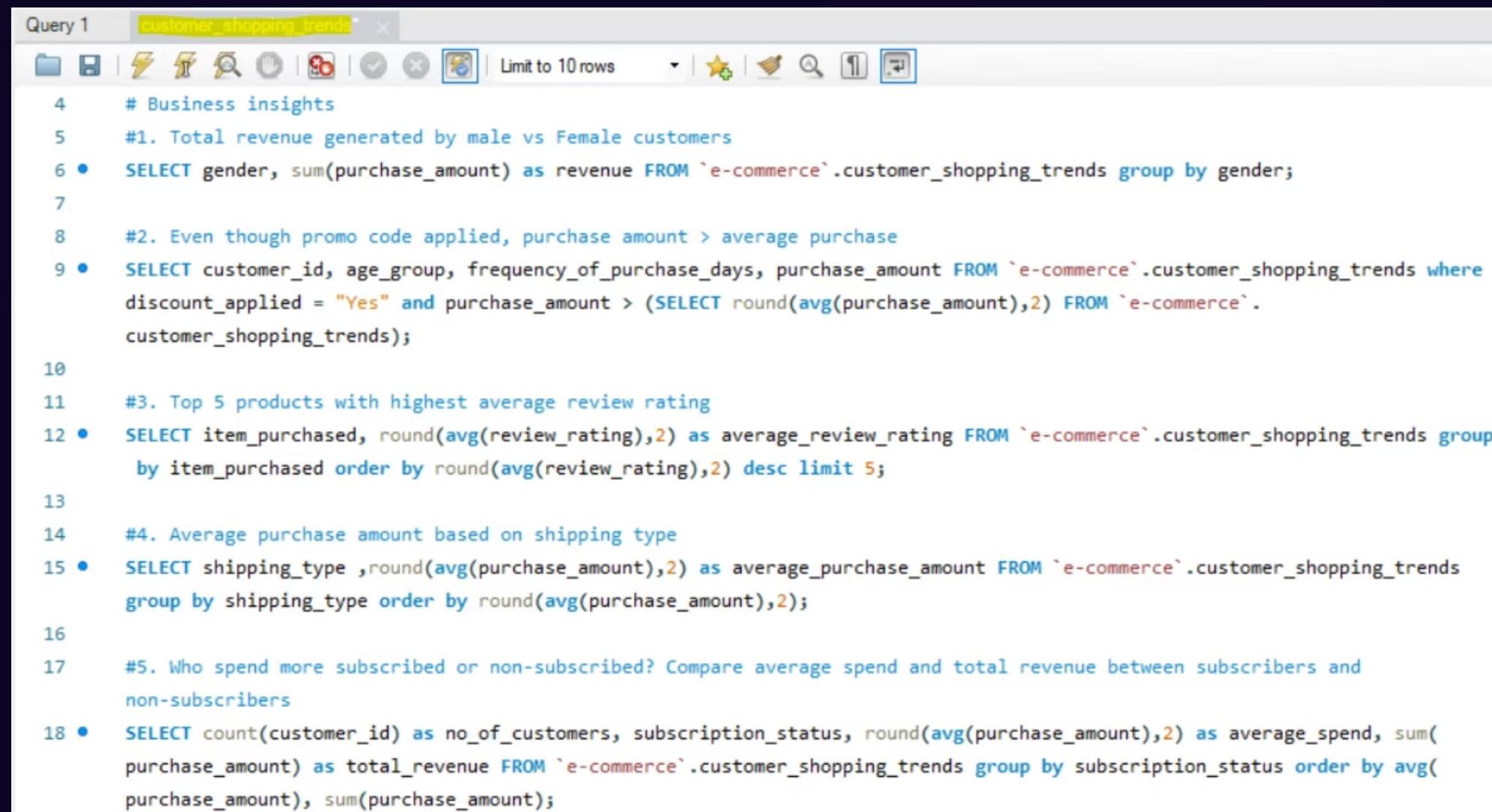
05

Database Integration

Connected to MySQL, loaded cleaned DataFrame for SQL analysis

SQL Business Queries

Structured analysis answered critical business questions across revenue, customer behavior, and product performance



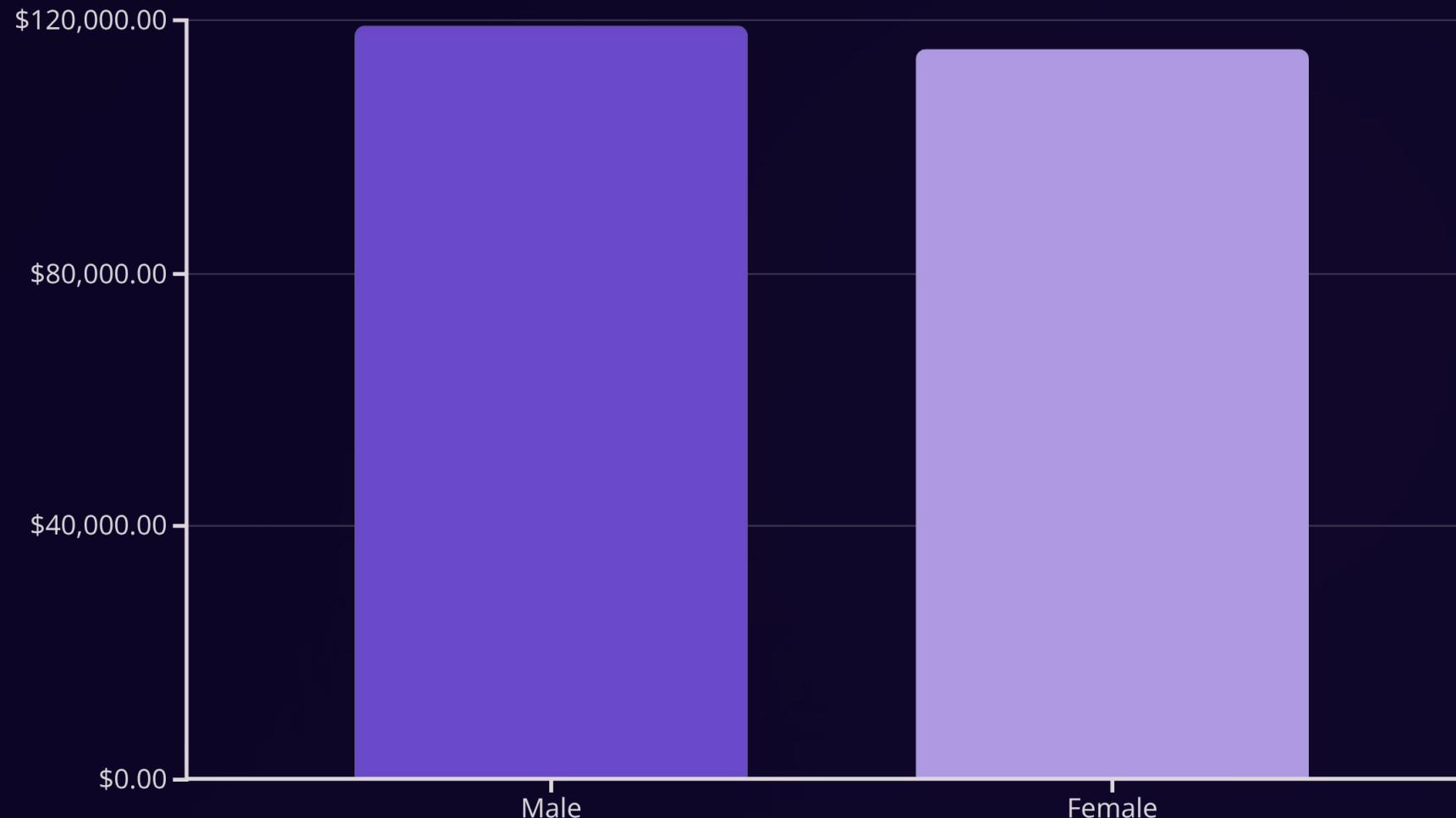
The screenshot shows a SQL query editor interface with the following details:

- Query 1:** The current query is titled "customer_shopping_trends".
- Toolbar:** Includes icons for file operations, search, and execution.
- Limit:** Set to "Limit to 10 rows".
- Content:** A series of numbered SQL statements (4-18) for business intelligence, grouped by category:

 - # Business insights
 - #1. Total revenue generated by male vs Female customers
 - #2. Even though promo code applied, purchase amount > average purchase
 - #3. Top 5 products with highest average review rating
 - #4. Average purchase amount based on shipping type
 - #5. Who spend more subscribed or non-subscribed? Compare average spend and total revenue between subscribers and non-subscribers

- Execution:** Each statement is preceded by a line number and a bullet point.

Key SQL Findings: Revenue & Behavior



Gender Revenue Balance

Nearly equal revenue contribution from male and female customers—marketing should remain gender-neutral

Discount Insight

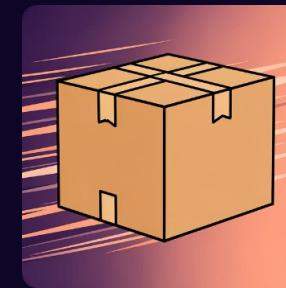
High-spending customers still use discounts, suggesting promotions don't cannibalize premium purchases

Product & Shipping Intelligence



Top-Rated Products

Jewelry, sunglasses, dress lead reviews—amplify in campaigns



Shipping Preferences

Express shipping users show higher avg. spend—premium delivery option drives revenue



Subscriber Value

Subscribers generate consistently higher revenue per transaction



Discount Dependency

Sandals, sweaters, shirts rely heavily on promotions—review pricing strategy

Customer Segmentation Breakdown

Three Tiers Identified

33%

New Buyers

First-time purchasers

41%

Returning

2+ purchases

26%

Loyal

Frequent buyers

Critical Insight

Customers with 2+ purchases show significantly higher subscription rates—repeat behavior predicts loyalty potential

Top Categories

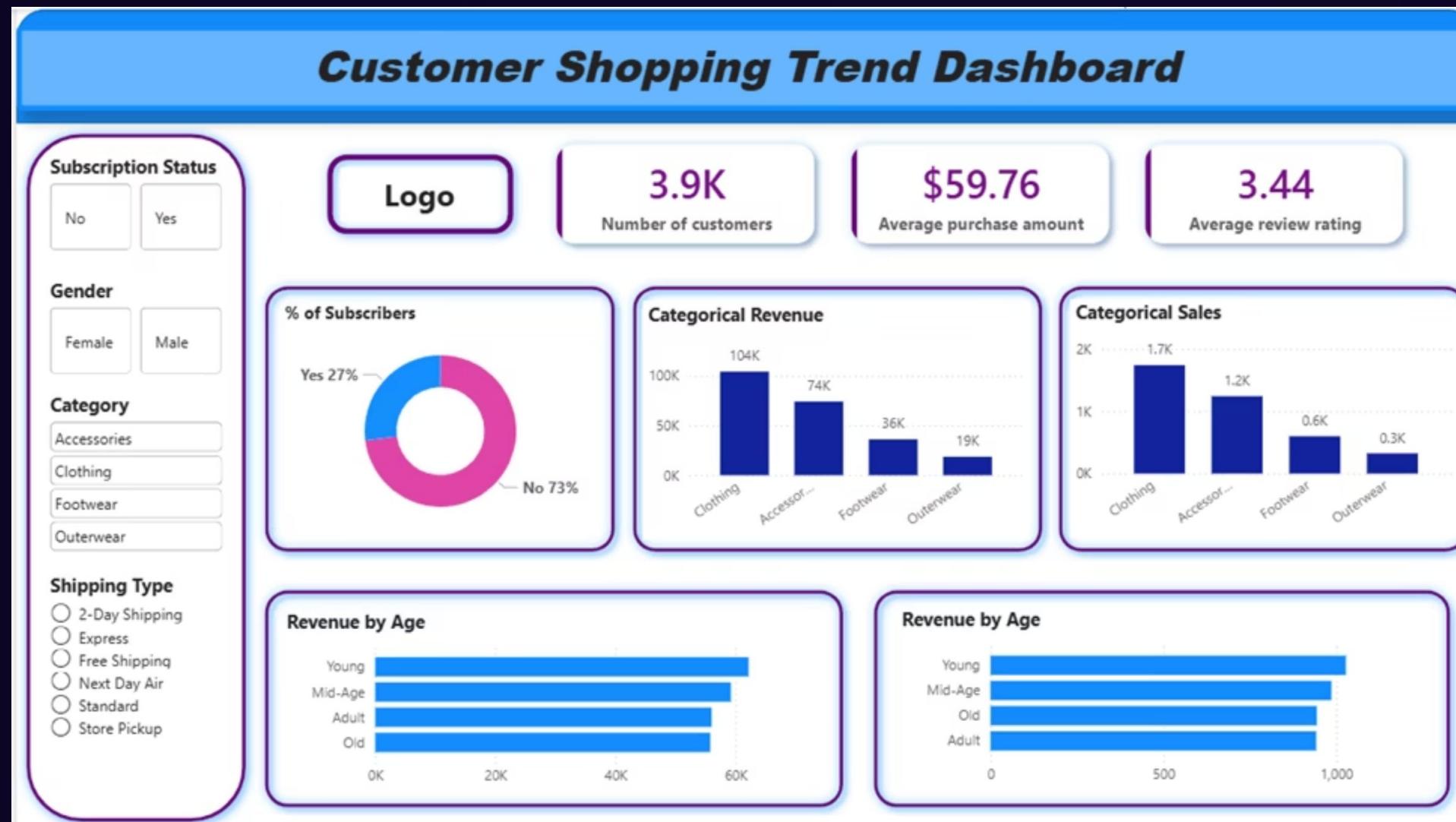
Clothing dominates across all segments, with accessories and footwear as strong secondary drivers

Age Group Leaders

Young adults and middle-aged customers contribute highest total revenue

Interactive Power BI Dashboard

Consolidated insights into visual interface for real-time exploration of trends, segments, and performance metrics



Strategic Recommendations

Boost Subscription Adoption

Promote exclusive perks and benefits—target returning customers with 2+ purchases

Loyalty Program Launch

Reward repeat buyers with points, early access, VIP experiences to accelerate segment progression

Review Discount Strategy

Balance promotional volume with margin protection—test dynamic pricing for discount-dependent products

Product Positioning

Feature top-rated items and category bestsellers prominently in campaigns and homepage placements

Targeted Marketing

Focus ad spend on high-revenue age groups and promote express shipping to premium-spend audiences