

# Structured Report with Image Placement & Captions

## 1. Executive Summary

This analysis of eCommerce transaction data reveals critical insights about regional preferences, customer behavior, and seasonal trends. Key findings include December revenue dominance (69% above average), balanced customer value distribution, and untapped potential in Asian markets.

## 2. Data Quality

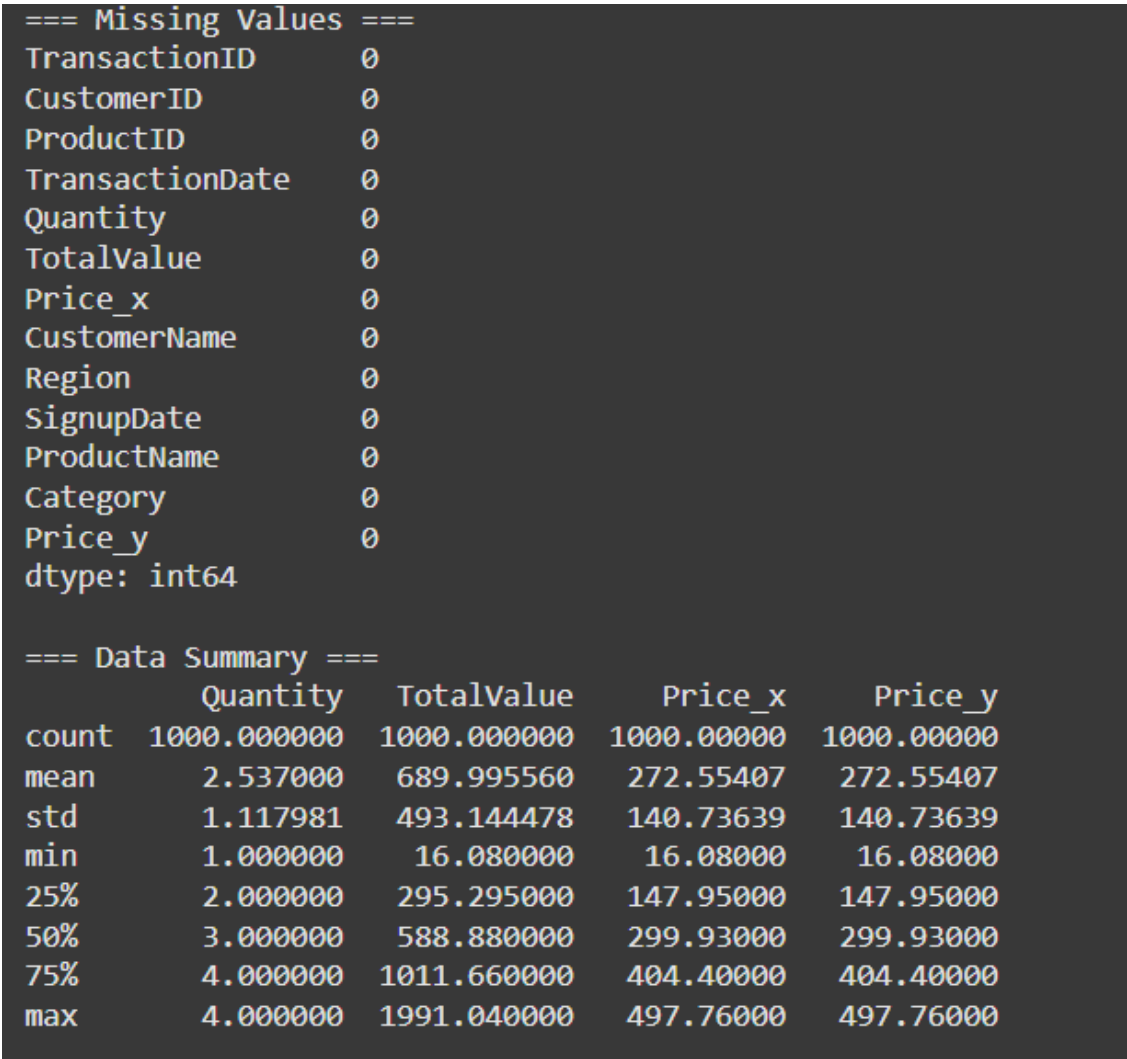


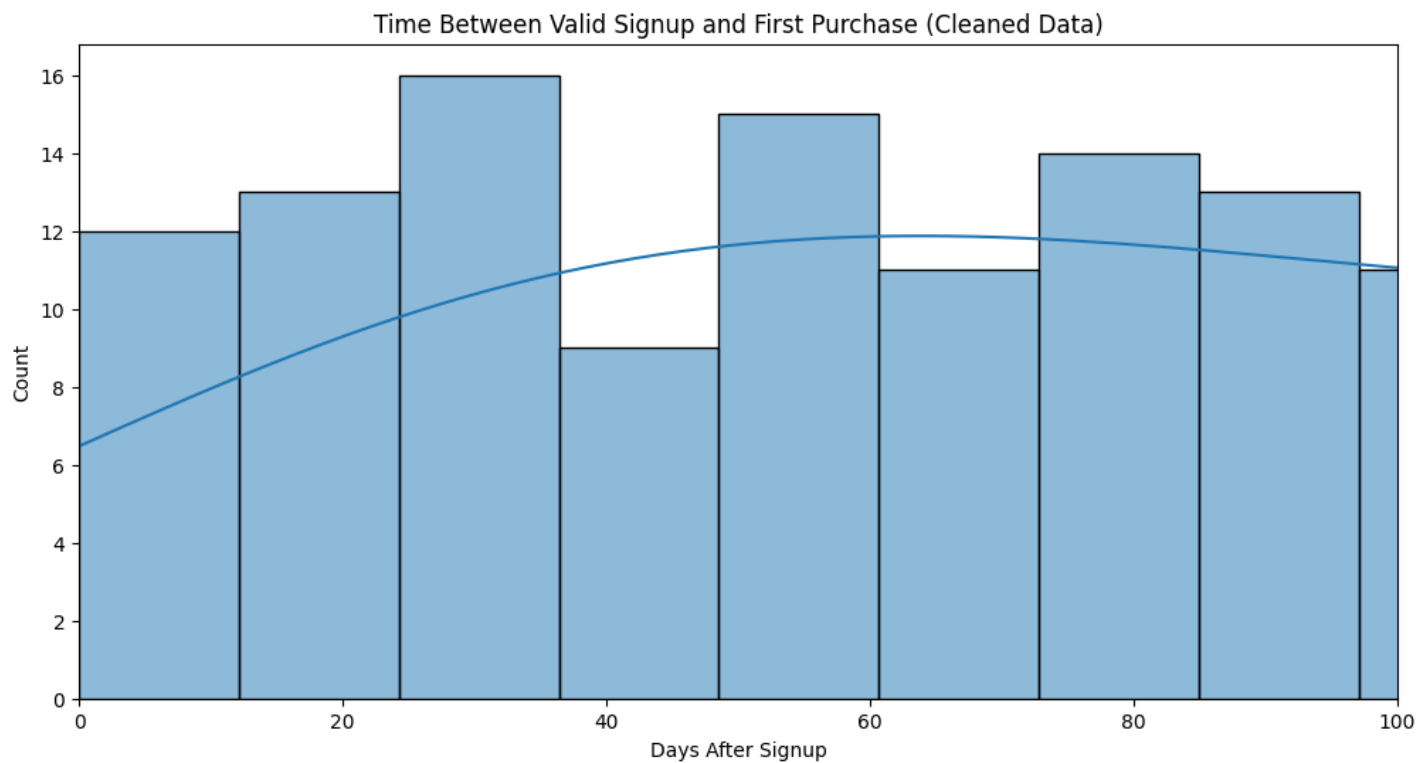
Figure 1: Missing Values & Data Summary tables

- No missing values and price consistency (Price\_x = Price\_y).
- Dataset is reliable for decision-making with no cleaning required.

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### 3. Customer Behavior Analysis

#### 3.1 Purchase Timing



*Figure 2: The histogram shows how many days (x-axis) pass between a valid signup and a first purchase. It reveals multiple peaks in the 0–20, 20–30, and 50–60 day ranges, with a noticeable dip around 30–40 days.*

- Target early adopters with immediate offers, push campaigns around the 20–30 and 50–60 days peaks, and re-engage users before the 30–40 days lull. Maintain touchpoints beyond 60 days to capture late converters
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### 3.2 High-Value Customers

High-Value Customers (Top 10%): 11  
Contribution to Revenue: 12.0%

Figure 3: Top 10% of customers (11 users) drive 12% of revenue, indicating balanced revenue distribution.

- Implement a tiered loyalty program to retain mid-tier spenders rather than focusing only on top customers.

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## 4. Regional Analysis

### 4.1 Revenue Distribution

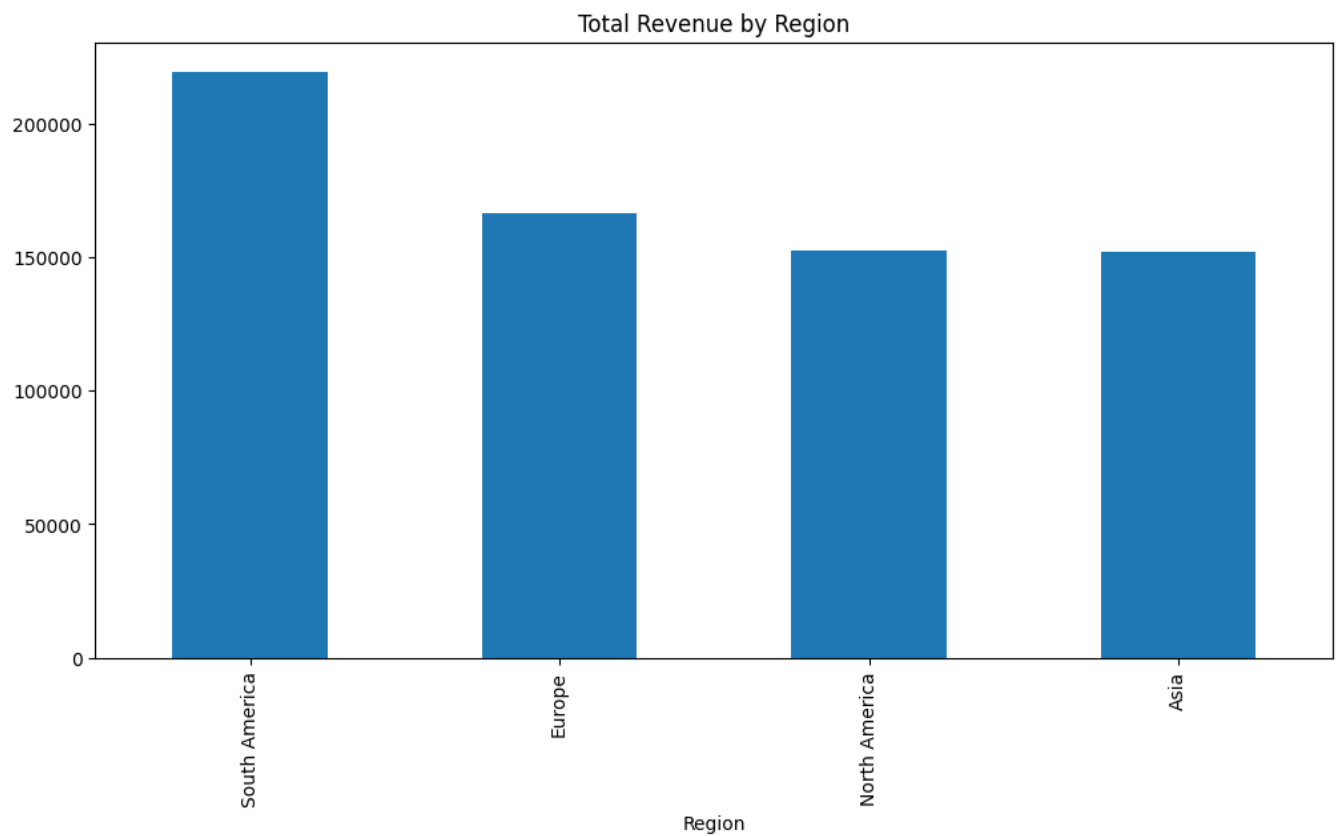


Figure 4: Total Revenue by Region chart (South America > Europe > NA > Asia)

- **South America (32%)** leads revenue, while **Asia (18%)** underperforms despite high transaction volume.

- **Asia's** low revenue is driven by budget purchases (Books/Clothing). Introduce premium versions of popular categories to boost margins.

## 4.2 Category Preferences

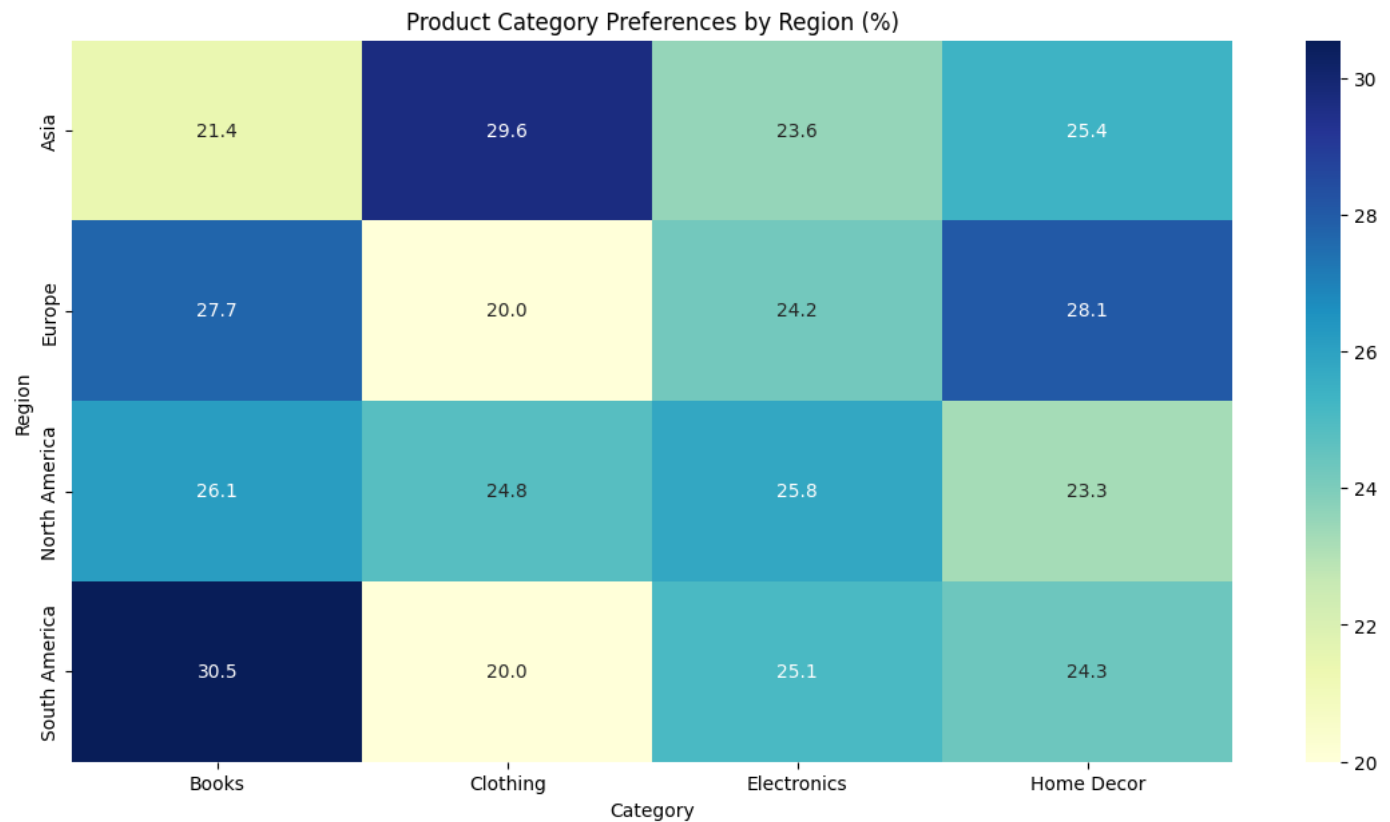


Figure 5: Product Category Preferences by Region (%) heatmap

- Regional Category High Preferences
  - **Asia:** Clothing (29.6%).
  - **Europe:** Electronics (27.7%) & Home Decor (28.1%).
  - **South America:** Books (30.5%).
  - **North America:** Books (26.1%).
- Bundle region-specific products (e.g., 'Tech + Home Decor' in Europe) to increase average order value.

5. Product Performance

5.1 Top Products

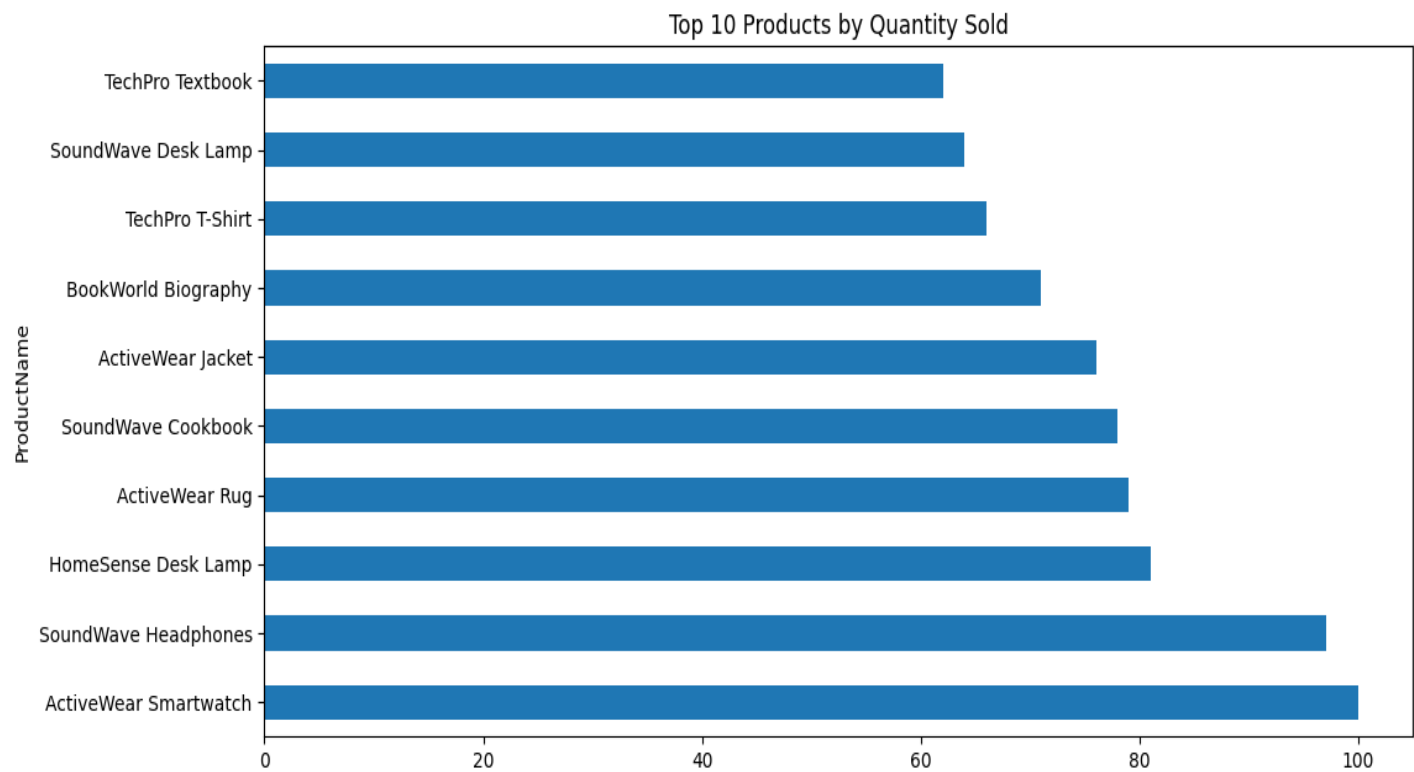


Figure 6:Top 10 Products by Quantity Sold bar chart

- TechPro Textbook and ActiveWear Jacket dominate sales.
  - Create 'Fitness Bundles' (e.g., ActiveWear Jacket + Smartwatch) to cross-sell complementary products.
  - Books show **price sensitivity** (−0.45 correlation), while Electronics are price-insensitive. Use dynamic pricing for Books.
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6. Temporal Trends

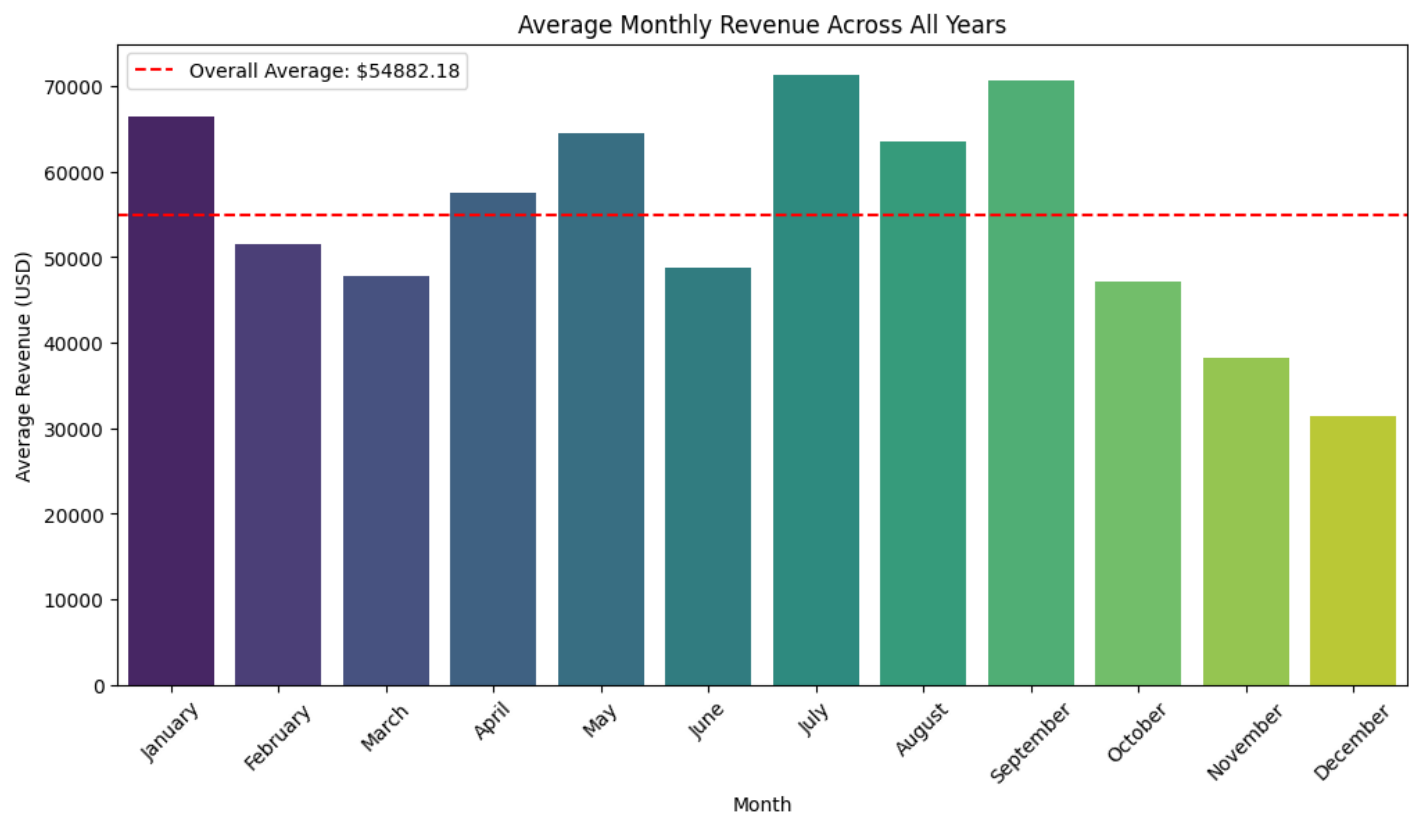


Figure 7:Average Monthly Revenue Across All Years bar chart

**December revenue (69% above average) vs. February slump (42% below average).**

Stock 25% extra Electronics/Home Decor inventory in November. Counter February with 'Valentine's Day' promotions.

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