

SIDDIGAN TM - EDA

Here are the key business insights derived from the EDA and visualizations of the customer, product, and transaction data:

1. Regional Sales Performance

- **South America dominates sales:** Accounts for the highest total sales, followed by Asia.
Action: Prioritize marketing investments and inventory allocation in high-performing regions like South America.
- **Highest Average Transaction Value (ATV):** South America also leads in ATV, suggesting customers there spend more per purchase.
Opportunity: Bundle premium products or offer upsells to capitalize on higher spending behavior.

2. Product Performance

- **Top Selling Products by Quantity:**
 - *ActiveWear Smartwatch, SoundWave Headphones, and HomeSense Desk Lamp* are top performers.
Action: Increase stock for high-demand items and feature them in promotions.
- **Revenue by Category:**
 - *Electronics generate the highest revenue* (e.g., smartwatches, headphones), followed by Books.
Opportunity: Expand the electronics category with complementary accessories.

3. Customer Behavior

- **Repeat Customers Drive Revenue:**
 - *94% of customers are repeat buyers, contributing 99% of total revenue.*
Action: Strengthen loyalty programs (e.g., discounts for repeat purchases) to retain this critical segment.
- **Customer Lifetime Value (CLV):**
 - *Most customers have a CLV below \$2,000, but a small group exceeds \$8,000.*
Opportunity: Identify and target high-CLV customers with personalized offers.

4. Temporal Trends

- **Signup Surge in March 2024:** A spike in customer signups occurred in Q1 2024.
Investigate: Correlate with marketing campaigns or seasonal trends to replicate success.
- **Stable Transaction Frequency:** Most customers make 1–4 transactions, with a mean of ~2.5.
Action: Incentivize higher purchase frequency (e.g., subscription models).

5. Pricing & Category Strategy

- **Electronics Command Premium Prices:**

- Products like *ActiveWear Smartwatch (\$346)* and *SoundWave Headphones (\$300+)* drive high margins.
Opportunity: Introduce tiered pricing (e.g., basic vs. premium versions).
- Low Revenue in Home Decor: Despite moderate sales volume, this category underperforms.
Action: Reassess pricing or product differentiation (e.g., eco-friendly materials).

6. Operational Insights

- No Missing Data: All datasets are clean, ensuring reliability for decision-making.
- Correlation Between Price and Quantity Sold:
 - Weak negative correlation (-0.12), suggesting price hikes may reduce volume.
Caution: Test price elasticity before adjusting costs.