Business Insights: An EDA Report

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This report presents the findings of exploratory data analysis on the eCommerce transactions dataset. The data contains customer profiles, product details, and transaction history, which provide valuable insights into the business operations and customer behaviours. Given below are some insights:

1. **Most Purchased Products:**
   The data reveals that the ActiveWear Smartwatch (100 units sold) and SoundWave Headphones (97 units) are the most purchased products, making up a significant share of total sales. Ensuring sufficient stock of these high-demand products is critical to prevent potential revenue losses.

2. **Revenue by Region:**
   The data indicates that South America generates the highest revenue at $219,352.56, followed by Europe at $166,254.63. North America and Asia record lower revenue figures of $152,313.40 and $152,074.97, respectively. To enhance overall global revenue, the business could consider expanding operations and implementing targeted marketing strategies in the relatively less profitable regions, such as Asia.

3. **Customer Signup Trends:**
   Customer sign-ups go up and down with the seasons. For example, September 2024 had the most sign-ups i.e. 11, and sign-ups also go up during holiday months like December. Matching advertising campaigns to these patterns can help grow the business during important times.

4. **Top Customers by Spending:**
   A small number of customers account for a large part of the revenue. For example, Paul Parsons spent the most, at $10,673.87. Offering special programs, like exclusive deals, for these top customers can help keep them loyal and make them more valuable in the long run.

5. **Category Sales:**
   The sales performance varies across product categories. Books are the top-selling category (681 units), followed by Home Décor (639 units). Electronics and Clothing also sell well, with 627 and 590 units, respectively. Promoting less popular categories could help boost their sales.

6. **Average Transaction Value by Product:**
   In terms of transaction value, expensive items like the ComfortLiving Mystery

Book ($1,248.26 average value) are in the lead. Revenue can be effectively increased by highlighting these products in top customer campaigns.

7. **Monthly Revenue Trends:**
When revenue is broken down by month, January 2024 has a peak in revenue ($66,376.39), followed by September 2024 ($70,603.75). Slower months, such as November, see a decline in revenue. Sales may be maintained during slower times with the use of seasonal promotions.

Recommendations:

1. **Inventory:** Ensure sufficient stock of top-performing products, like the *ActiveWear Smartwatch.*

2. **Geographic Focus:** Strengthen marketing in less profitable regions, such as Asia & North America.

3. **Seasonal Promotions:** Use signup and revenue trends to guide seasonal campaigns.

4. **High-Value Customers:** Develop loyalty programs targeting top spenders.

5. **Category Growth:** Promote less popular categories like Clothing via discounts and other deals.

6. **Premium Focus:** Highlight high-value products for premium customer segments, i.e. recommending high transaction products to top spending customers.

7. **Steady Revenue:** Plan campaigns and sales during low-revenue months to balance income.