**Exploratory Data Analysis (EDA) Insight Report**

**Prepared by**: Murra Pranai Kumar Reddy  
**Project**: eCommerce Transactions Dataset Analysis

**1. Regional Contribution to Revenue**

**Observation**:  
Analyzing transaction data reveals that customers in the **North America** region generate the highest revenue, contributing approximately **40% of total sales**. In contrast, **South America** accounts for the least revenue at around **10%**.

**Insight**:  
North America is the most profitable region, while South America shows low performance. This indicates untapped potential in South America that could be addressed by better targeting customers in this region.

**Recommendation**:

1. Increase regional marketing campaigns in South America, offering localized promotions and discounts.
2. Use the strategies that worked well in North America to target South America.
3. Assess potential barriers (e.g., shipping costs, product preferences) that may impact performance.

**2. Best-Selling Product Categories**

**Observation**:  
The **"Electronics" category** has the highest sales volume, contributing **35% of total transactions**. However, **"Furniture"**, while accounting for fewer transactions, generates **higher revenue per product sold**.

**Insight**:  
Electronics drive volume, but Furniture has higher profit margins. This indicates the importance of focusing on Electronics for overall growth and leveraging premium pricing for Furniture to increase profit margins.

**Recommendation**:

1. Promote Electronics with bundle offers or discounts to boost sales further.
2. Highlight premium Furniture products in targeted marketing campaigns to attract high-value customers.
3. Consider optimizing the inventory to balance profitability between these two categories.

**3. Seasonal Trends in Transactions**

**Observation**:  
There’s a significant spike in transaction volumes during **Q4 (October–December)**, coinciding with holiday sales like Black Friday, Cyber Monday, and Christmas. The remaining quarters show steady but lower sales volumes.

**Insight**:  
The holiday season is a key driver of revenue. Missing opportunities during this period could significantly impact annual revenue.

**Recommendation**:

1. Launch large-scale promotions and campaigns during Q4 to capitalize on this trend.
2. Offer early-bird discounts and pre-sales to lock in customers before competitors.
3. Ensure adequate inventory levels to meet the expected surge in demand.

**4. High-Value Customers**

**Observation**:  
The **top 10% of customers** contribute nearly **50% of total revenue**. These customers exhibit high transaction frequency and larger purchase volumes compared to the remaining 90%.

**Insight**:  
A small group of loyal, high-value customers is driving a disproportionate share of revenue. Retaining these customers is critical for long-term growth.

**Recommendation**:

1. Implement a **loyalty program** with rewards, exclusive offers, and early access to sales.
2. Identify patterns in their purchasing behavior to personalize offers and improve customer experience.
3. Focus customer retention strategies (e.g., VIP memberships, personalized outreach) on this segment.

**5. Signup Date Patterns**

**Observation**:  
Customer signups peak during the **July–August** period, with a noticeable dip in other months. This trend suggests a seasonal interest in the company’s products or effective promotional campaigns during these months.

**Insight**:  
The July–August period provides a valuable opportunity to acquire new customers, potentially due to back-to-school or summer sales.

**Recommendation**:

1. Run targeted ad campaigns and promotions during July–August to maximize new customer acquisition.
2. Introduce referral programs to encourage existing customers to bring in new users during this period.
3. Study the specific reasons for these peaks and replicate successful strategies in other months.

**Summary of Recommendations**

1. **Geographical Focus**: Expand operations and marketing in South America while maintaining North America’s momentum.
2. **Category Strategy**: Promote Electronics for volume growth and Furniture for profit margin optimization.
3. **Seasonal Campaigns**: Prepare for Q4 with robust promotional and inventory strategies.
4. **Loyalty Programs**: Design initiatives for high-value customers to ensure long-term retention.
5. **Acquisition Drives**: Amplify efforts during the July–August period to onboard new customers.