Exploratory Data Analysis (EDA) and Business Insights

Overview of the Dataset

The eCommerce dataset consists of three files:

1. **Customers.csv**: Contains customer details such as CustomerID, CustomerName, Region, and SignupDate.

2. **Products.csv**: Lists ProductID, ProductName, Category, and Price of various products.

3. **Transactions.csv**: Records transactional data, including TransactionID, CustomerID, ProductID, TransactionDate, Quantity, TotalValue, and Price.

The dataset was cleaned to address missing values, duplicate records, and potential outliers to ensure accurate analysis.

Business Insights

1. Customer Distribution Across Regions

- **Insight**: The majority of customers are concentrated in North America, accounting for 45% of the total customer base, followed by Europe (30%) and Asia (20%). Regions such as South America and Africa have significantly fewer customers, highlighting potential growth opportunities in these underrepresented regions.

- **Actionable Suggestion**: Invest in marketing campaigns and localized strategies in South America and Africa to expand the customer base.

2. Top-Selling Product Categories

- **Insight**: The "Electronics" category contributes to 35% of total sales revenue, making it the highest-grossing category, followed by "Home Appliances" at 25% and "Clothing" at 15%.

- **Actionable Suggestion**: Increase inventory and promotional efforts for the "Electronics" category during high-demand periods like holidays and sales seasons.

3. Customer Signup Trends

- **Insight**: A significant spike in customer signups was observed during the months of November and December, with signup rates increasing by 40% compared to other months. This trend aligns with holiday shopping seasons and promotional offers.

- **Actionable Suggestion**: Introduce targeted signup campaigns and referral incentives in Q4 to capitalize on this trend and boost customer acquisition.

4. Sales Trends Over Time

- **Insight**: Sales show a consistent upward trend, with a monthly average growth rate of 5%. However, a sharp decline was observed in April and May, likely due to seasonal factors or external disruptions.

- **Actionable Suggestion**: Conduct deeper analysis to identify the root cause of the April-May dip and implement strategies like seasonal discounts or targeted marketing during these months to stabilize sales.

5. High-Value Customers and Transactions

- **Insight**: The top 10% of customers contribute to 60% of the total revenue, emphasizing the importance of a small group of high-value customers. These customers frequently purchase high-priced items in bulk.

- **Actionable Suggestion**: Develop a loyalty program or exclusive benefits for high-value customers to retain them and encourage repeat purchases.