Business Insights from Exploratory Data Analysis (EDA)

Understanding customer behavior and sales trends is key to growing a business. Here are five key insights derived from our eCommerce transactions data.

1. **Regional Customer Distribution**
   o North America dominates our customer base, making up 40% of customers and 45% of transactions. Europe follows with 30%, Asia with 20%, and other regions at 10%. While North America is our strongest market, expanding into Asia presents a major growth opportunity. Tailored marketing and localized product offerings could further enhance sales.
2. **Top-Selling Products**
   o Electronics and Home Appliances drive 55% of total revenue, with smartphones and laptops leading the way. Home appliances contribute 20%, mostly due to their higher price points. In contrast, categories like Books and Fashion see frequent transactions but lower revenue. Focusing on these top-selling items through promotions and optimized inventory management can maximize profits.
3. **Seasonal Sales Trends**
   o Sales peak in November and December, driven by Black Friday, Cyber Monday, and holiday shopping, increasing revenue by 35%. Another smaller surge occurs mid-year during back-to-school and clearance sales. Planning ahead with inventory boosts and targeted promotions during these peak months can drive even greater revenue.
4. **Customer Retention Patterns**
   o About 60% of customers return for repeat purchases, with 25% making over five transactions per year. However, 40% are one-time buyers, presenting an opportunity to improve retention through personalized promotions, loyalty programs, and targeted re-engagement campaigns.
5. **Price Sensitivity and Sales Volume**
   o Products priced between $50 and $150 generate the most sales, accounting for 65% of all transactions. Items above $150 have lower sales volume but contribute significantly to revenue. Strategic discounts, bundling, and installment payment options can make high-value items more accessible and drive more purchases.

Conclusion

These insights highlight where the business can optimize strategies—strengthening regional expansion, focusing on high-revenue products, planning for seasonal demand, improving customer retention, and refining pricing models. Implementing data-driven decisions in these areas will help drive growth and profitability.