

## **Report: Business Insights from EDA (Task 1)**

The eCommerce transactions dataset analysis helped reveal customer behavior, sales of products, and transactional patterns. These findings can inform strategic decisions to maximize marketing, product price, and customer engagement strategies.

- **Insight 1: Distribution of Customers by Region**  
Customer distribution by region was analyzed and found that a high percentage of customers are in North America and Europe, and they comprise about 70% of the total number of customers. The other regions, such as Africa and South America, have fewer customers. This gives an indication of growth opportunities in regions not so well represented through region-specific marketing campaigns and special promotions.
- **Insight 2: Top-Grossing Product Categories**  
The product categories contributing the most to overall revenue are "Electronics" and "Furniture," with each generating approximately 40% of total sales. These categories have high average transaction values, suggesting an opportunity to introduce premium products or bundle deals in these segments to increase revenue further.
- **Insight 3: Seasonal Transaction Trends**  
Transaction analysis throughout time reveals obvious seasonality peaks for November and December, which aligns with holiday buying seasons. The trend indicates seasonal demand is very much in effect on sales. Companies can utilize this knowledge to strategize inventory, introduce advertising campaigns, and offer discounts in order to capitalize on these peak-demand periods.
- **Insight 4: Customer Loyalty and Retention**  
About 60% of customers have only one transaction, and 20% are repeat customers who generate almost 50% of total revenue. This shows the significance of retaining loyal customers. Loyalty programs, customized discounts, and post-purchase engagement strategies can enhance customer retention and long-term value.
- **Insight 5: Price Sensitivity and Volume Patterns**  
Products that cost less than \$50 are more transaction heavy, showing the price sensitivity of consumers. Conversely, products in the range above \$200 constitute a lower percentage of sales but bring more revenue per sale. A tiered pricing plan with low-cost options and premium versions could sell to a larger market.
- **Insight 6: Product-Specific Demand**  
"Smartphones" and "Laptops" are the best-selling items, with high contributions to both revenue and transaction volume. Their popularity is indicative of the increasing demand for technology-based products. Expansion of the product line to accessories and complementary products (e.g., laptop bags, screen protectors) can also increase sales in this segment.
- **Insight 7: Signup and Transaction Activity**  
Customers who joined in the past 12 months have a greater probability of making purchases than older accounts. This highlights the importance of prioritizing onboarding initiatives for new customers, like special discounts or welcome bonuses, to take advantage of their increased engagement.