

# ***Assignment 1: Analysis of the E-commerce Dataset***

## ***1. Distribution of Customers by Region***

The customers are divided into four regions, of which South America accounts for **59 customers**, **Europe for 50 customers**, **North America for 46 customers**, and **Asia for 45 customers**. There are more customers in South America and Europe combined than in the rest of the regions. Therefore, South America and Europe would be prime markets with proper analysis of the client preference patterns and patronage.

## ***2. Most Popular Products***

The top 10 selling products are electronics, fashion items, and home decor. **"SoundWave Jeans" and "SoundWave Cookbook" sold 46 units each, while "TechPro Headphones" and "ActiveWear Rug" sold 45 and 43 units, respectively**. This shows the popularity of these categories, which can be used to guide inventory management and promotional campaigns. Diversifying the product line within these categories or offering discounts may further boost sales.

## ***3. Sales Trends***

Monthly sales review depicts a trend peaking during the holiday season, especially in December. In December 2023, the figure was at **\$3,769.52**, and January 2024 recorded a significant jump at **\$66,376.39**. That is to say that customers are more active in this festive season probably due to promotions associated with holidays. The business can capitalize on this trend by making specific marketing strategies and offering specific discounts during such months to ensure revenue maximization.

## ***4. Average Transaction Value by Region***

Average transaction value varies by region. South America has the highest average of **\$721.55**, **Europe follows with \$710.49**, and **Asia with \$697.59**. **North America has the lowest average** transaction value at **\$624.24**. It would be logical to infer that South America and Europe are spending more on transactions per client; therefore, a higher purchasing power or premium products might be favored in these regions. Those strategies to upsell or cross-sell may work well in the markets.

## ***5. Customer Retention Trends***

Customer sign-up trends show that retention has been going up year after year. In 2022, 64 customers had enrolled, and in the year 2023, 57 had enrolled. The highest number was in the

year 2024, at 79. This implies that more customers are coming into the business each year. Perhaps because of effective marketing or satisfaction efforts directed to the clients. This pattern needs to be continued; perhaps loyalty programs could increase retention.

## ***6. Gross Sales and Order Value***

While the company was processing *1,000 transactions that netted \$689,995.56, it had an average order value of \$690.00*. This would mean that the business has always targeted the mid-to-premium market. It would thus show strong spending among the customer base and potentially make even better offerings by way of bundles or tailored suggestions to improve it even more.

## ***7. Actionable Insights***

- Focus marketing efforts on South America and Europe, as they account for a significant portion of customers and revenue.
- Strengthen inventory and promotions for electronics and fashion categories to cater to customer demand.
- Launch targeted holiday promotions to capitalise on peak sales periods.
- Implement strategies to upsell premium products in South America and Europe, where customers exhibit higher spending behaviour.
- Introduce customer loyalty programs to retain the growing customer base and sustain long-term growth.

Overall, the data highlights significant opportunities for the business to grow revenue by focusing on customer preferences, optimising regional marketing, and leveraging seasonal trends.

## ***Short Recommendation***

From the above analysis, the business should **focus** on markets such as **South America and Europe**, develop an effective inventory in terms of **electronics and fashion items**, and run targeted holiday promotions to boost seasonal sales. Also, **loyalty programs** can be launched to retain the growing customer base, and premium product upselling in high-spending regions increases revenue further. Thus, such steps will help companies generate sustainable growth while enhancing customer engagement.

## ***References***

Kadre, S., & Konasani, V. R. (2015). *Practical business analytics using SAS: A hands-on guide*. Apress.

Provost, F. (2013). *Data Science for Business: What you need to know about data mining and data-analytic thinking (Vol. 355)*. O'Reilly Media, Inc.