

Exploratory Data Analysis and Business Insights

The exploratory data analysis provided a detailed understanding of customer behaviour, product performance, and overall sales trends. Below is the summary of the findings and actionable recommendations:

1. Customer Distribution by Region

The highest number of customers is concentrated in **South America**, followed by **Europe**, **North America**, and **Asia**. This suggests that the business has a strong presence in South America but potential growth opportunities exist in Asia and North America.

Recommendation: Focus on targeted marketing campaigns in Asia and North America to expand the customer base. Additionally, consider retention strategies for South America to maintain dominance.

2. Top 5 Most Purchased Products

The products **SoundWave Cookbook**, **SoundWave Jeans**, and **TechPro Headphones** are among the top-selling items, showing consistent demand. **TechPro Cookbook** and **ActiveWear Smartphone** also rank high in sales.

Recommendation:

- Ensure adequate stock levels for these high-demand products.
 - Analyze cross-selling opportunities by bundling these products with related items.
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3. Monthly Sales Trend

The monthly sales exhibit fluctuations, with noticeable peaks around **February 2024** and **June 2024**, followed by a dip in the last quarter of the year.

Recommendation:

- Increase promotional efforts during low-sales months (e.g., November and December).
 - Use insights from peak months to design campaigns that drive higher year-end sales.
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4. Distribution of Product Categories

The business has a balanced distribution across **Books, Electronics, Clothing, and Home Décor** categories, with Books and Electronics leading slightly.

Recommendation:

- Expand the product range in underrepresented categories (e.g., Home Décor).
 - Evaluate customer preferences within each category to introduce innovative products.
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5. Most Active Customers

The top 5 customers by total spending are:

1. **Paul Parsons** - \$10,673.87
2. **Bruce Rhodes** - \$8,040.39
3. **Gerald Hines** - \$7,663.70
4. **William Adams** - \$7,634.45
5. **Aimee Taylor** - \$7,572.91

Recommendation:

- Offer loyalty programs or exclusive discounts to retain these high-value customers.
 - Analyze their purchasing behavior to identify patterns and predict future needs.
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