Data Science Assignment: eCommerce Transactions Dataset Analysis

Business Insights

1. Regional Distribution

Analysis of the customer data shows that most customers are from **South America** and **Europe**. These regions represent significant portions of the customer base, suggesting that targeted marketing campaigns in these areas could maximize customer engagement and acquisition.

2. Revenue by Category

The **Electronics** and **Books** categories drive the highest revenue. This indicates strong consumer preferences for these product types, making them critical to the company's product strategy. Promotions and inventory optimization in these categories could further enhance revenue.

3. Product Popularity

A significant portion of transactions involves products like **SoundWave Jeans** and **TechPro Headphones**. While these products contribute significantly to revenue, there's an opportunity to diversify product offerings to minimize over-reliance on a small number of items.

4. Revenue by Region

South America leads in revenue generation, making it the company's most important market. Focused marketing efforts, localized campaigns, and expanded services in this region could strengthen the company's market presence and boost revenue further.

5. Seasonal Trends

Monthly transaction trends reveal **seasonal spikes** in revenue. These insights can help the company align its marketing campaigns and inventory planning with peak demand periods, ensuring better customer satisfaction and operational efficiency.

Visualizations and Findings

1. **Customer Distribution by Region**: Bar charts highlight customer concentration in South America and Europe.
2. **Product Category Distribution**: Electronics and Books dominate.
3. **Top 10 Products by Transactions**: A horizontal bar chart shows the popularity of key products.
4. **Revenue by Region**: Visual representation emphasizes South America's leading contribution.
5. **Monthly Revenue Trends**: A time series line chart depicts clear seasonal patterns.