

Data Science Assignment: eCommerce Transactions Dataset

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Assignment Tasks:

Task 1: Exploratory Data Analysis (EDA) and Business Insights

1. Perform EDA on the provided dataset.
2. Derive at least 5 business insights from the EDA.
 - Write these insights in short point-wise sentences (maximum 100 words per insight).

Deliverables:

- A Jupyter Notebook/Python script containing your EDA code.
- A PDF report with business insights (maximum 500 words).

Business Insights:

1. The most popular product category is Books.
2. The region with the highest revenue is South America.
3. Sales show a seasonal trend with peaks during June, August, September months.
4. The average transaction value is highest in the South America region.
5. Top 10 customers contribute a significant percentage of the overall revenue.

Here are few business insights derived from the exploratory data analysis:

1. **High Lifetime Value Customers:** A small group of customers contributes to the majority of total sales, indicating that high-value customers drive significant revenue. Targeted loyalty programs or personalized discounts for this group can maximize profitability.
2. **Category Spending Preferences:** Customers tend to concentrate their spending on a few product categories. The most popular product category is **Books**, making it a key area for promotional campaigns and inventory optimization.
3. **Regional Disparities:** Customers from **South America** generate the highest revenue and also have the highest average transaction value. This region is critical for expanding business opportunities and launching tailored marketing campaigns.
4. **Purchase Frequency Patterns:** Customers with higher transaction frequency exhibit lower average transaction values. This suggests opportunities for upselling or bundling products to increase their per-transaction spend.
5. **Seasonal Sales Trends:** Sales exhibit seasonal peaks during **June, August, and September**, indicating these months are critical for promotional efforts, inventory management, and marketing strategies.
6. **Revenue Concentration:** The **top 10 customers** contribute a significant percentage of the overall revenue, emphasizing the importance of focusing on retaining and nurturing this elite customer base.
7. **Inactive Customers:** A significant proportion of customers have low transaction frequencies or limited interaction with the platform post-signup. Re-engagement strategies like tailored offers or email campaigns can convert these inactive users into loyal customers.