

Business Insights Report: eCommerce Transactions Dataset

Overview

The eCommerce transactions dataset includes three files: Customers, Products, and Transactions. The data provides information on customer demographics, product categories, and transaction details. After conducting Exploratory Data Analysis (EDA), the following business insights were derived:

1. Regional Customer Distribution

- **Insight:** Customers are distributed across four regions, with South America being the dominant market (59 out of 200 customers).
- **Business Impact:** South America's customer base indicates strong market penetration. Marketing efforts, loyalty programs, and region-specific promotions should be prioritized for this region to maximize revenue.

2. Product Category Analysis

- **Insight:** The dataset shows four product categories, with "Books" being the most frequent (26% of products). The average price of products is \$267, with the Books category having relatively lower prices.
- **Business Impact:** Books act as a high-volume product category, potentially driving repeat customers. Cross-selling opportunities, such as bundling Books with Electronics or Clothing, can increase average transaction value.

3. Transaction Value Trends

- **Insight:** The average transaction value is approximately \$690, with some transactions reaching nearly \$1991. Products priced above the 75th percentile (\$404) significantly contribute to overall revenue.
- **Business Impact:** Focusing on premium products and offering tiered pricing can attract high-value customers. Personalized recommendations for premium products could further increase revenue per customer.

4. Purchasing Behavior

- **Insight:** Customers typically purchase 2–3 items per transaction, as indicated by the average quantity of 2.5. Higher quantities are associated with higher transaction values.
- **Business Impact:** Introducing product bundles or discounts for bulk purchases can encourage customers to increase the number of items per transaction, optimizing inventory turnover and boosting sales.

5. Customer Signup Trends

- **Insight:** The dataset contains 179 unique signup dates, with some dates showing higher signup frequencies (up to 3 customers per day). These spikes may align with promotional campaigns or seasonal sales.

- **Business Impact:** Analyzing these high-signup dates further can reveal the effectiveness of marketing campaigns. Timing future campaigns during these periods can maximize customer acquisition.

Key Recommendations

1. **Expand Regional Promotions:** Focus efforts on South America with localized campaigns and personalized offers to retain the existing customer base.
2. **Leverage High-Performing Categories:** Use Books as a gateway category and upsell complementary products like Electronics and Clothing.
3. **Target High-Value Customers:** Identify and engage customers who frequently purchase premium products with loyalty programs and exclusive offers.
4. **Promote Bundling:** Introduce combo offers and discounts for bulk purchases to align with observed buying patterns.
5. **Optimize Campaign Timings:** Analyze past high-signup periods and align future marketing activities with these trends to boost customer acquisition.

