Exploratory Data Analysis Report: Business Insights

This report summarizes key findings from the EDA performed on the e-commerce dataset, which consists of transactions, products, and customer details. The goal is to uncover trends and insights that can improve business strategies.

Dataset Overview:

This report presents insights derived from three datasets:

Transactions: Details on purchases, including customer ID, product ID, transaction date, quantity, and value.

Products: Information on product name, category, and price.

Customers: Customer demographics, including name, region, and signup date.

The EDA involved data cleaning, univariate and multivariate analysis, and trend identification to uncover actionable insights.

Business Insights:

1. **Top-Performing Products:**

The "PO67 "ComfortLiving Bluetooth Speaker (Electronics Category) is the best-performing product, with consistent sales across multiple month

Recommendation: Promote the "P067" with bundles or discounts, as it is the top-performing product.

2. **Regional Trends:**

    South America exhibits the highest purchasing frequency. Focused marketing and localized promotions in this region can enhance sales.

Recommendation: Invest in South American markets with tailored campaigns.

3. **Seasonal Peaks:**

Sales spike in May-July, these months show the highest revenue contributions, likely due to summer holiday shopping.

Recommendation: Implementing seasonal promotions during this period can significantly boost revenue.

4. Customer Behaviours

Customers are a mix of long-term and recent buyers. Some transactions date back to **2022**, while new sign-ups are observed in **2024**.Repeat customers in specific regions indicate brand loyalty opportunities.

Recommendation: Loyalty programs can target repeat customers for upselling or premium offerings.

4. **Category Performance:**

"Electronics" leads in revenue, while "Books" dominates transaction volume. Expanding offerings in these categories could attract more customers.

Recommendation: Broaden "Electronics" and "Books" categories to attract a wider

5. **Cross-Selling Opportunities:**

Customers buying "Electronics" also purchase related accessories. Cross-selling campaigns targeting these combinations can increase transaction value.

Recommendation: Bundle accessories with electronics to drive up transaction value.

6. **Retention Gaps:**

A significant portion of one-time buyers does not return. Personalized follow-ups and targeted onboarding emails can address this gap.

Recommendation: Re-engage first-time buyers with follow-up communication.