

Exploratory Data Analysis and Business Insights

Task 1: EDA Report for eCommerce Transactions Dataset

1. Customer Growth Trend

The SignupDate field in the Customers.csv shows a steady increase in customer signups over time, particularly in the last quarter. This indicates the effectiveness of recent marketing campaigns or promotional activities. The customer base has expanded rapidly, suggesting that customer acquisition strategies are successful. However, further analysis can determine whether this growth is sustainable or if it's driven by short-term factors.

2. Regional Preferences

Analyzing the Region and Category columns reveals that different regions show distinct product preferences. Customers in North America predominantly purchase electronic products, while European and Asian customers lean towards fashion and lifestyle categories. This information provides valuable insight for regional product stock management and targeted marketing strategies, allowing for more effective product offerings tailored to local tastes and demands.

3. Product Popularity

From the Transactions.csv, it's evident that certain products, especially electronics and mobile accessories, generate the highest total sales revenue. The ProductID field highlights top-performing products, revealing that customers prefer high-ticket items with broad utility. Retailers could focus on promoting these popular products during peak shopping periods and use them as the centerpiece for advertising campaigns to boost sales further.

4. Customer Purchase Behavior

By examining the frequency and total value of transactions per customer, it becomes clear that a small segment of customers are frequent buyers, while the majority make only a few purchases. This suggests that high-value customers should be the focus of retention strategies, such as loyalty programs or exclusive offers. Understanding purchase behavior allows businesses to segment customers effectively and implement targeted promotions based on their transaction patterns.

5. Seasonal Buying Patterns

The transaction data also reveals certain seasonal spikes in purchases, especially during the holiday season. A noticeable increase in total transactions around December indicates a trend of customers making larger purchases during this time. By capitalizing on these seasonal spikes, businesses can optimize inventory, marketing strategies, and sales forecasts. Implementing time-sensitive promotions and discounts could further increase revenue during these peak months.