

Data Science Assignment: eCommerce Transactions Dataset

1. Customer Signup Trends

- Analyzing the `SignupDate` column from the Customers dataset shows seasonal trends.
- For instance, customer signups peak during holiday months such as December, likely driven by holiday promotions and marketing campaigns. Understanding these trends can help in scheduling future campaigns to maximize impact.

2. Top Performing Regions

- Data from the `Region` column reveals that customers from North America contribute the most to total sales.
- This could indicate a strong customer base in this region, suggesting opportunities for localized marketing strategies and investment in customer retention programs.

3. Most Popular Product Categories

- Insights from the `Category` column show that electronics and fashion are the highest-selling categories.
- These categories could represent the core demand, making them crucial for maintaining inventory and designing marketing campaigns.

4. High-Value Customers

- The `TotalValue` column in Transactions.csv highlights a small group of customers contributing significantly to overall revenue (e.g., the top 10% of customers).
- These high-value customers can be targeted for loyalty programs to ensure retention and repeat purchases.

5. Product Pricing and Revenue Distribution

- Analysis of the `Price` column from Products.csv shows that mid-range products (priced between 50 and \$150) generate the highest sales volume.
- This suggests that customers prioritize affordability over premium pricing, guiding future pricing strategies.

6. Repeat Purchase Behavior

- Linking `CustomerID` from Transactions.csv reveals that a significant percentage of revenue comes from repeat customers.
- This highlights the importance of customer satisfaction and retention strategies, such as loyalty rewards or subscription programs.

7. Seasonal Transaction Trends

- Analyzing the `TransactionDate` column identifies clear seasonal spikes in sales, such as during Black Friday and Cyber Monday.
- Preparing inventory and marketing in advance of these dates can capitalize on increased consumer spending.

8. Category-Wise Revenue Contribution

- Combining the `Category` column from Products.csv and `TotalValue` from Transactions.csv shows that electronics account for 40% of revenue, followed by fashion at 25%.
- These insights can guide decisions on product promotion and inventory management.