

Zeotap Data Science Assignment - Report

e-Commerce Transactions Dataset:

Exploratory Data Analysis (EDA) and Business Insights Report

Task 1: Exploratory Data Analysis (EDA)

1. Objective

Perform EDA on the provided dataset to uncover meaningful business insights related to customers, products, and transactions.

2. Key Findings

A] Customer Signup Trends:

- Customer signups peaked during specific months, indicating potential marketing campaigns or seasonal demand.
- Monthly trends reveal consistent growth over time, suggesting increased customer acquisition efforts.
- B] Popular Products:
- The top 10 products accounted for a significant portion of total sales volume.
- These products could be prioritized for marketing or inventory management to maximize revenue.

C] Transaction Trends:

- Transaction volume shows periodic spikes, likely aligning with holiday seasons or promotional periods.
- Identifying these periods can help optimize stock levels and promotional strategies.

D] Customer Clusters:

- Five distinct customer clusters were identified:
- High spenders with high purchase quantities.
- Low spenders with occasional purchases.
- Moderate spenders with consistent buying patterns.
- These clusters can be used for targeted marketing and personalized offers.

E] Customer Segmentation Insights:

- A significant proportion of customers fall into the low-spender category, presenting opportunities to increase engagement through loyalty programs.
- High spenders could be targeted with premium product offers or exclusive deals.

3. Business Insights:

- Seasonal Patterns in Signups: Marketing campaigns aligning with seasonal peaks in signups can amplify customer acquisition.
- Strategy: Enhance promotions during peak signup months.
- Top-Selling Products Drive Revenue: Focus on high-demand products that contribute significantly to sales.
- Strategy: Allocate more marketing and inventory resources to these products.
- Periodic Spikes in Transactions: Transaction spikes correlate with holidays or promotions.
- Strategy: Increase inventory and prepare campaigns before these periods.
- Cluster-Based Targeting: High spenders prefer bulk purchases, while low spenders need engagement strategies.
- Strategy: Personalize offers for different customer clusters.

- Low-Spender Growth Potential: Engaging low-spending customers with loyalty programs can boost overall revenue.
- Strategy: Introduce point-based incentives for increased purchase frequency.

4. Visualization Highlights:

- Customer Signup Trends: Bar chart showing monthly customer signups.
- Popular Products: Bar chart for the top 10 most sold products.
- Transaction Trends: Line graph illustrating monthly transaction volumes.
- Customer Clusters: Scatterplot depicting customer clusters based on total spending and quantity purchased.