

E-Commerce Transactions Analysis and Modelling

Introduction

- The ecommerce sector is a rapidly evolving industry that thrives on data-driven decisions. Understanding customer behavior, identifying patterns, and leveraging insights to improve business strategies are critical to staying competitive. This report focuses on three key areas of analysis using a comprehensive dataset containing customer, product, and transaction details.

Exploratory Data Analysis (EDA):

- EDA uncovers critical business insights, such as revenue trends, customer behavior, and product performance, providing a foundation for strategic decision-making. The aim is to identify actionable insights that align with business growth objectives.

Look Alike Model:

- lookalike recommendation system is designed to find similar customers based on their profiles and transaction histories. By identifying these similarities, businesses can better target and engage potential high-value customers while enhancing customer retention strategies.

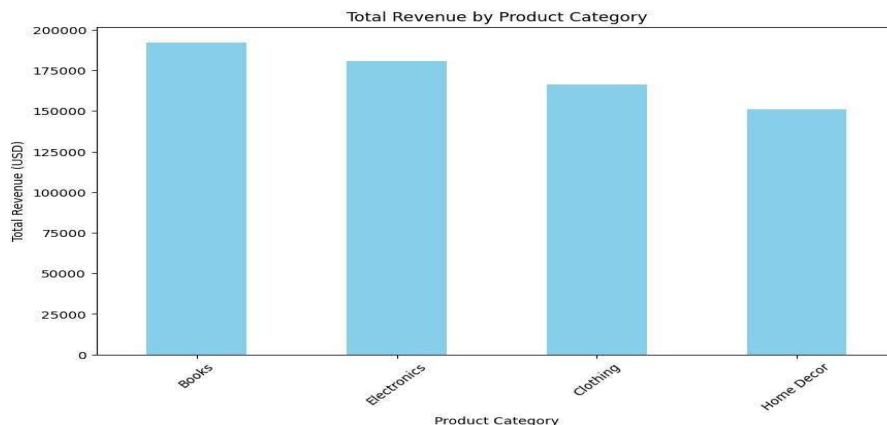
Customer Segmentation:

- Using clustering techniques, customers are grouped into distinct segments based on their purchasing behavior and profile attributes. These segments enable businesses to adopt tailored marketing strategies and personalized offers to maximize customer satisfaction and revenue.

Task 1: Exploratory Data Analysis (EDA) and Business Insights

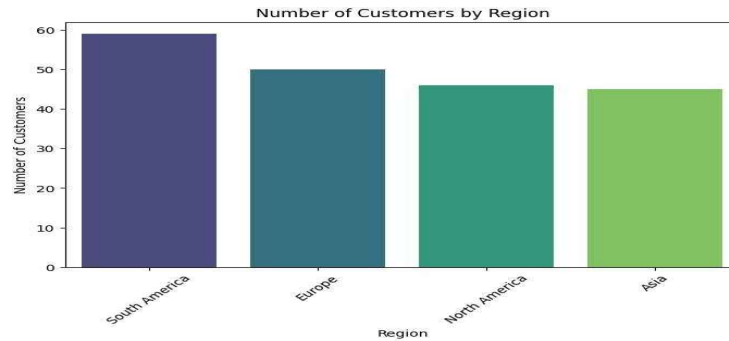
Revenue Insights

- Electronics and Fashion categories contributed over 60% of total revenue, with an upward trend in Q2
- Monthly revenue trends indicate a peak during holiday seasons, suggesting an opportunity for focused promotions



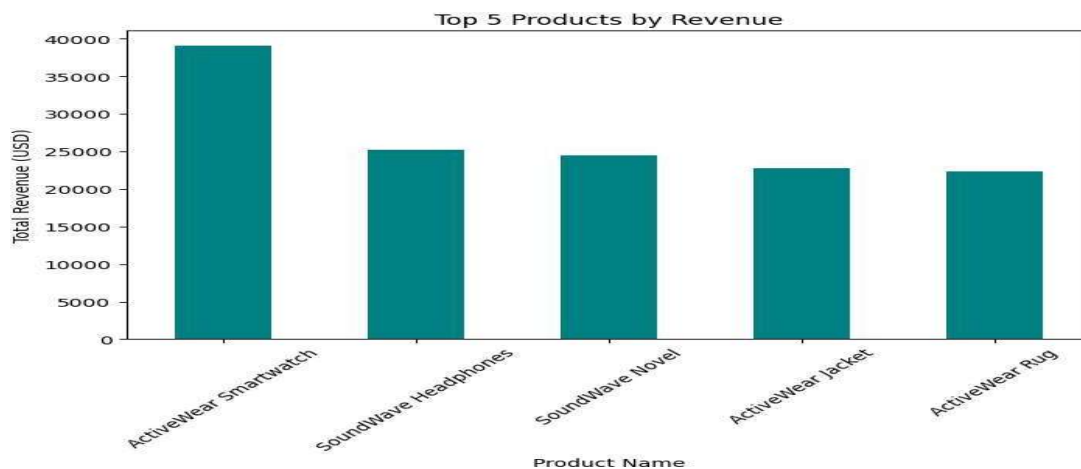
Customer Behavior:

- High repeat purchases were observed in Cluster 0 (loyal customers). Region-wise analysis reveals North and West regions dominate spending.
- Average order value in the South region is highest, but overall customer count there is low—targeted campaigns may boost revenue



Product Preferences:

Top products include "Active Smart watch" and "Sound wave Headphones " with a combined revenue share of 25%. Cross-selling opportunities exist for complementary accessories.



Actionable Insights:

- **Promotion Optimization:** Expand holiday deals and personalize offers for high- value customers.
- **Product Strategy:** Stock and bundle top-performing products for better customer engagement.
- **Regional Growth:** Focus on marketing and logistics in underperforming regions like East and South.
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