DATA SCIENCE ASSIGNMENT: e-COMMERCE TRANSACTIONS DATASET

TASK 1: Exploratory Data Analysis (EDA) and Bussiness Insights

Introduction:

Understanding how customers interact with a business is the key to growth and profitability. This analysis delves into customer spending behavior, using Exploratory Data Analysis (EDA) and K-Means clustering to categorize customers based on their total purchases. The recognition of different customer segments can help businesses fine-tune their marketing strategies and create a more personalized customer experience.

Business Insights:

1. Understanding Customer Spending Patterns

Most customers spend at a low to moderate level, but a smaller group of customers has a much greater impact on total revenue. To maximize potential, businesses should focus on engaging mid-tier spenders through incentives and personalized deals to encourage more frequent and higher-value purchases.

2. The Power of High-Value Customers

A small percentage of customers contribute a large share of revenue. Retaining them is crucial. Exclusive perks, loyalty programs, and personalized shopping experiences can help keep these valuable customers engaged and satisfied.

3. Seasonal Shopping Trends

The data indicates seasonal spikes in spending,
indicating a strong buying season.
Businesses can anticipate such trends and make the most of it by
offering special promotions, early-bird discounts, and festive deals to
attract more customers during peak times.

4. Upselling and Cross-Selling Opportunities

Mid-value customers give the opportunity of spending more money.
Businesses can encourage these customers to spend without feeling
forced if they strategically offer complementary products, bundle
deals, or premium choices.

5. Customer Loyalty and Retention

A large percentage of customers buy only once and never come back.
To turn one-time buyers into loyal customers, businesses should
implement follow-up emails, tailored discount offers, and
membership programs that provide long-term benefits.

Conclusion

This customer segmentation analysis uncovers valuable patterns that
can drive smarter business decisions. By understanding customer
behavior and acting on these insights, businesses can enhance
relationships, boost sales, and create long-term brand loyalty.