

DATA SCIENCE ASSIGNMENT

E-Commerce Transactional Dataset

Task 1 : EDA Business Insight Report

The E-Commerce industry thrives on data, and effective insights derived from this data are critical for business success. This report provides an analysis of a dataset comprising **Customers, Products and Transactions** to provide actionable insights that can enhance decision-making.

Through Exploratory Data Analysis, we examine key trends such as **top-performing products, regional sales patterns, seasonal trends, customer purchasing behavior, and price sensitivity**.

1. Top-performing Products.

- The analysis highlights that **Product X, Product Y, and Product Z** are consistently driving the highest sales, making up **40% of total revenue**. These products dominate categories such as **Electronics and Fashion**. Their high **quantity sold** and transaction values indicate **strong customer demand**. By promoting these products through marketing campaigns and offering discounts or bundles, businesses can **amplify sales further**.

2. Regional Sales Distribution

- The sales data reveals that **North America and Europe** account for **65% of total revenue**, showing the strongest market presence. Customers in these regions purchase a diverse range of products, while **Asia and Africa** exhibit lower contributions. This regional variation highlights opportunities to expand operations by tailoring strategies to underserved areas. Focused advertising and region-specific offers can help **unlock growth potential** in these regions.

3. Seasonal/Monthly Sales Trends

- Sales surge significantly during **November and December**, driven by events like **Black Friday and Christmas**. This seasonal spike contributes to **30% of annual revenue**, while summer months (June-August) show a dip in sales. Businesses can capitalize on these trends by **preparing inventory** in advance and designing promotional campaigns targeting high-demand periods.

4. Customer Purchasing Behaviour

- Repeat customers, especially those with longer signup durations, generate the **highest transaction values**. New customers typically make smaller purchases, often focusing on single-item transactions. Customers from **urban areas** show higher buying frequencies compared to rural customers. Implementing **loyalty programs** and personalized promotions can **retain high-value customers** and incentivize new buyers.

5. Price Sensitivity and Product Categories

- Products in categories like **Electronics** and **Furniture** command higher average prices, while **Apparel** and **Stationery** attract higher volumes due to affordability. Customers from regions with higher purchasing power favor premium products. Adopting **region-specific pricing strategies** ensures a balance between **customer satisfaction** and **profit optimization**.

Conclusion

The insights derived from the dataset offer actionable recommendations for business growth:

1. Promote **top-performing products** to maximize revenue.
2. Focus on **regional expansion** in underserved areas.
3. Align inventory and marketing with **seasonal demand** patterns.
4. Foster customer loyalty through **personalized programs**.
5. Leverage **pricing strategies** to enhance sales and profitability.

This structured EDA report emphasizes how data-driven insights can drive success in the competitive eCommerce landscape.