

Business Insights in EDA

Observation 1: There are **no missing values** in any of the columns of the dataset.

Business Insight:

Since the dataset is complete and has no missing values, you can rely on the data for consistent and accurate analysis without the need for imputation. This ensures better confidence in data-driven decision-making. For instance:

Reliable Customer Segmentation: You can perform precise customer segmentation based on region, product preferences, or transaction behavior, as all necessary attributes are fully available.

Observation 2: Based on Summary Statistics for **Quantity** variable
The average quantity purchased per transaction is approximately **2.54**, with most purchases ranging from 2 to 4 items (based on quartiles).
The **minimum quantity is 1, and the maximum is 4.**

Business Insight:

Customers are purchasing in small, consistent quantities. This suggests:

The products may cater to individual consumers or small-scale needs rather than bulk buyers.

Observation3: The dataset contains 1,000 entries and 13 columns, with no missing values.

Key data types and Insights:

Numeric Columns: Quantity, TotalValue, Price_x, Price_y (suitable for numerical analysis and modeling).

Categorical Columns: Region, ProductName, Category (useful for segmentation or group-level analysis).

Date Columns: SignupDate, TransactionDate (can be converted to datetime for time-based analysis).

Observation 4: Correlation matrix -

Correlation between TotalValue and Price_x/Price_y: The correlation of **0.7227** between TotalValue and Price_x (and similarly for Price_y) suggests a strong positive correlation. This means that as the price of a product increases, the total transaction value tends to increase as well. This is an expected behavior, as higher-priced products would generally contribute to higher total values.

Correlation between Quantity and TotalValue: The correlation value of **0.6099** between Quantity and TotalValue indicates a moderate positive correlation. This implies that transactions involving more products tend to have higher total values, but the relationship is not as strong as that with price.

Business Insights:

- **Price and Total Value:**

The strong correlation between Price_x/Price_y and TotalValue suggests that pricing plays a critical role in determining the total value of a transaction. This insight can guide product pricing strategies to maximize revenue.

Actionable Strategy: Focus on premium pricing for high-value products to increase the total transaction value.

- **Quantity and Total Value:**

The moderate correlation between Quantity and TotalValue implies that increasing the quantity purchased also increases the transaction value, though price is a stronger determinant.

Actionable Strategy: Encourage customers to buy more units by offering bulk purchase discounts or bundle offers.

