

Task 1

Business Insights

The Exploratory Data Analysis(EDA) performed on the E-Commerce transactions dataset has yielded several valuable business insights. These insights focus on revenue generation, customer behavior, product performance, and regional profitability. Here are the key findings:

1. Revenue Generation by Product Category

The analysis of product performance revealed that the “**ActiveWear Smartwatch**” generates the highest revenue among all products. This suggests that customers have a strong preference for wearable technology, especially those that provide fitness and health tracking features. Businesses can take advantage of this trend by expanding the ActiveWear product line, offering bundled deals, or launching targeted marketing campaigns to maintain and grow this revenue stream.

2. High-Spending Customers

The examination of customer spending patterns identified the top five customers with the highest total expenditures: -

CustomerID	TotalValue
140	C0141 10673.87
53	C0054 8040.39
64	C0065 7663.70
155	C0156 7634.45
81	C0082 7572.91

These customers represent the organization's most valuable segment. Implementing strategies such as loyalty programs, exclusive discounts, or early access to new products can help retain these high-value customers and encourage ongoing spending.

3. Regional Profitability

The regional analysis indicated that “**South America**” is the most profitable region. This area contributes significantly to overall revenue, likely due to strong customer engagement or high demand for certain product categories. To further boost profitability in South America, the organization should consider customizing marketing campaigns to align with regional preferences and optimizing supply chain operations to ensure timely delivery and customer satisfaction.

4. Sales Seasonality

The line plot showing sales volume over time indicates that the highest sales occur between the 6th and 7th months of the year. This trend points to seasonal demand, likely driven by holidays, sales events, or product launches during this timeframe. To make the most of these peak sales periods, businesses should coordinate their inventory management, marketing efforts, and promotional strategies accordingly to boost sales and minimize stock shortages.

5. High Repeat Customer Rate

The sales volume line plot reveals that the 6th and 7th months of the year see the highest sales figures. This trend suggests a seasonal demand, likely influenced by holidays, promotional events, or new product launches during this time. To capitalize on these peak sales months, businesses should synchronize their inventory management, marketing campaigns, and promotional activities to enhance sales and prevent stockouts.