TASK 1: EXPLORATORY DATA ANALYSIS (EDA) AND BUSINESS INSIGHTS

1. CUSTOMER DEMOGRAPHICS BY REGION

- The bar chart for customer demographics shows the distribution of customers across various regions.
- Most customers are concentrated in **South America** indicating a need to enhance marketing efforts in underrepresented regions like Asia to balance customer acquisition.

2. PRODUCT SALES TRENDS OVER TIME

- The line chart shows sales trends by month.
- Sales peaked during **July** (e.g., festive seasons) and dipped during **November**. Promotional campaigns during low-sales months could help maintain steady revenue.

3. TOP-SELLING PRODUCTS:

- The bar chart indicates the highest-selling products by `TotalValue`.
- Products like **Tech Pro Headphones** and **Active Wear Rug** dominate sales, suggesting their popularity. Increasing stock or introducing similar products could maximize revenue.

4. Sales Forecasting

- Linear regression predicts sales trends.
- The forecast shows a steady increase in sales, with predicted sales for **November** being **57980**. Use this information for inventory and supply chain planning.

5. CUSTOMER SEGMENTATION:

K-Means clustering divides customers into three segments.

- **Cluster 0:** Represents low-spending, infrequent buyers. Strategies: Engage them with discounts or promotions.
- **Cluster 1**: Includes moderate spenders with average purchase frequency. Strategies: Upsell or cross-sell opportunities.
- **Cluster 2:** High-value customers. Strategies: Personalized offers, loyalty rewards to ensure retention.