Problem Statement: Analyzing Customer Purchasing Behavior

**Objective:** Understand the purchasing behavior of customers over time to identify trends, seasonal patterns, and potential areas for growth.

**Key Questions:**

1. **Sales Trends:** How do sales vary over time (daily, weekly, monthly)? Are there specific periods with significantly higher or lower sales?
2. **Customer Segmentation:** What are the purchasing patterns of different customer segments (e.g., wholesalers vs. individual customers)? How do their buying behaviors differ?
3. **Product Performance:** Which products (stock codes) are the best sellers? Are there any products that consistently underperform?
4. **Geographic Insights:** How do sales differ by country? Are there specific regions that contribute more to sales, and what might be the reasons for this?
5. **Seasonality:** Are there seasonal trends in purchasing behavior? For example, do certain products sell better during holidays or specific occasions?

Data Analytics Tasks:

* **Time Series Analysis:** Create visualizations (line charts) to show sales trends over time.
* **Customer Segmentation Analysis:** Use clustering techniques to group customers based on their purchasing behavior and visualize these segments.
* **Product Performance Analysis:** Generate bar charts to compare sales volumes of different products.
* **Geographic Analysis:** Create maps or heatmaps to visualize sales distribution by country.
* **Seasonal Analysis:** Use seasonal decomposition techniques to identify seasonal patterns in sales data.

Expected Outcome:

By analyzing the data, the company can gain insights into customer behavior, optimize inventory management, tailor marketing strategies, and ultimately increase sales and customer satisfaction.