**CLUSTERS INSIGHTS**

# 1. Customer Segmentation based on Purchase Behavior: The analysis successfully segments customers into distinct clusters based on their total spending, purchase quantity, and preferred product category. This segmentation provides valuable insights into different customer groups and their purchasing patterns.

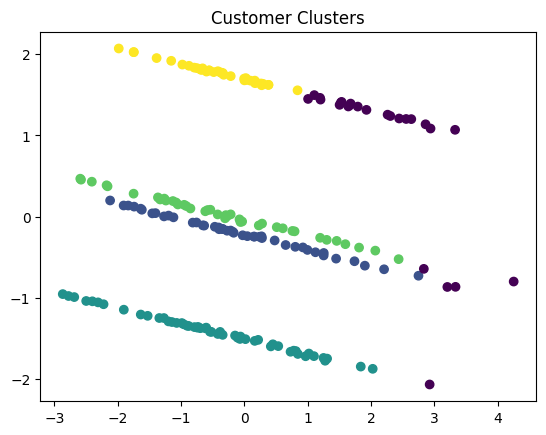
# 2. Lookalike Model for Targeted Marketing: The cosine similarity-based lookalike model identifies customers with similar purchasing behavior. This model can be used to personalize marketing campaigns and recommendations for each customer segment, improving targeting efficiency and customer engagement.

# 3. Customer Lifetime Value (CLV) Identification: The analysis identifies high-value customers with the highest CLV.  Focusing marketing efforts and loyalty programs on these customers can maximize return on investment (ROI).

# 4. Product Performance and Category Analysis:  The code explores product performance (e.g., top 5 most expensive products) and revenue by product category.  These insights help in inventory management, pricing strategies, and identifying high-performing or underperforming product lines.

# 5. Temporal Trends in Customer Behavior and Revenue: Analyzing signup trends over time (e.g., by year) and monthly revenue trends reveals patterns in customer acquisition and overall business performance. This can inform decisions on marketing campaigns, resource allocation, and identifying seasonal or cyclical trends.

**Davies-Bouldin Index: 0.7075972450928086**

****