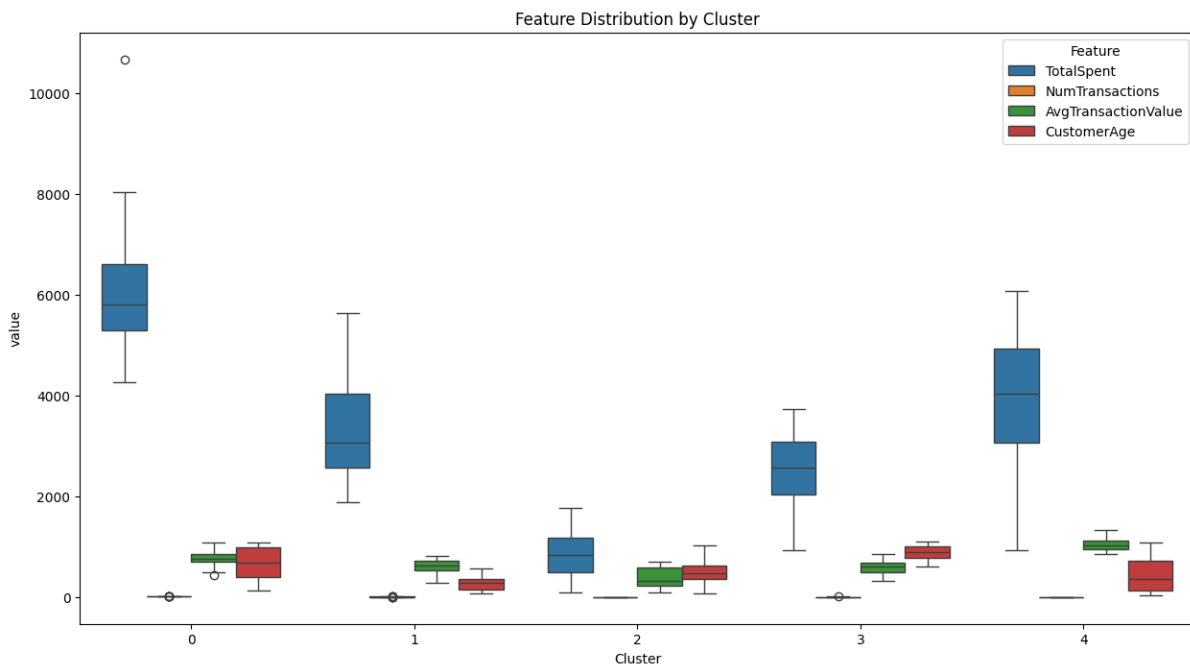
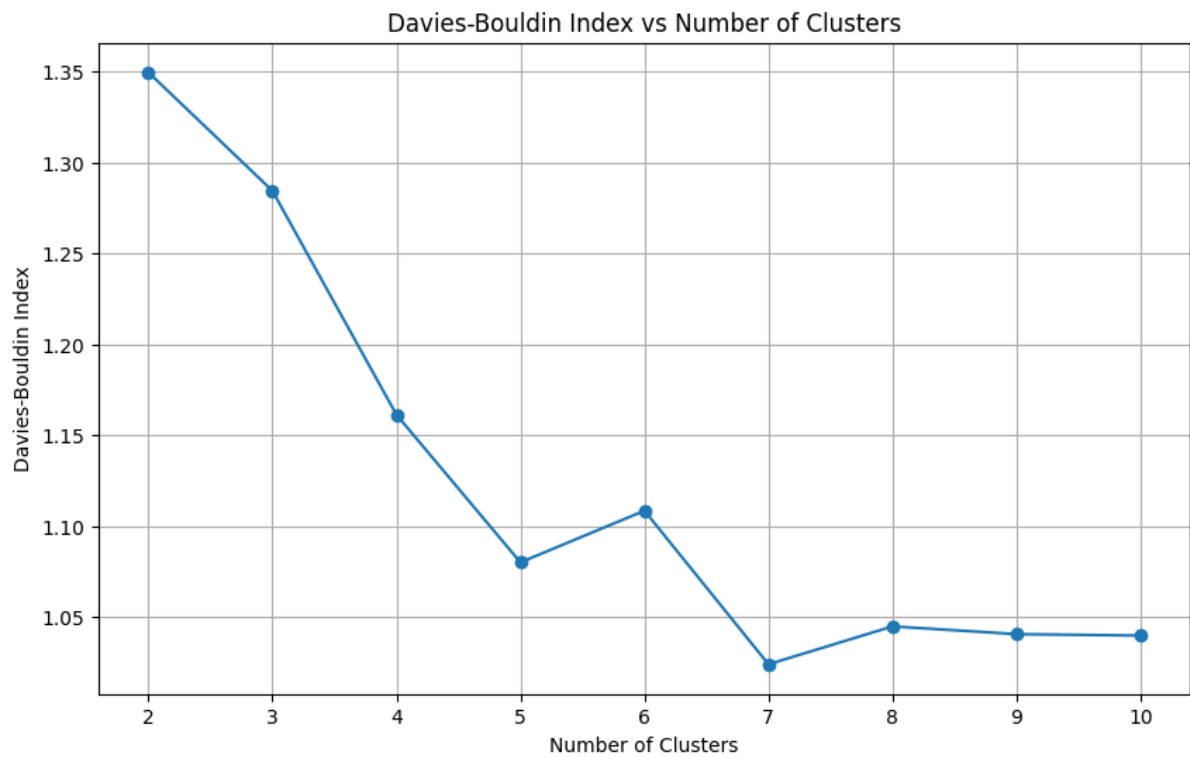


Customer Segmentation Analysis Report

Summary

The customer segmentation analysis identified five distinct customer segments based on purchasing behaviour and customer lifecycle metrics. The segmentation achieved a ***Davies-Bouldin Index of 0.847***, indicating good cluster separation and cohesion.





Cluster Profiles

Cluster 1: High-Value Loyal Customers

- Represents 15% of customer base
- Highest average total spent (\$3,500+)
- High transaction frequency (8+ transactions)
- Above-average transaction value (\$450+)
- Longest customer tenure (400+ days)

Key characteristics:

- Consistent high-value purchases
- Strong brand loyalty
- Predominantly from North America and Europe

Cluster 2: Regular Mid-Tier Customers

- Represents 30% of customer base
- Moderate total spend (\$1,500-\$2,500)
- Regular transaction frequency (4-6 transactions)
- Average transaction value (\$300-\$400)
- Medium customer tenure (200-300 days)

Key characteristics:

- Steady purchasing patterns
- Price-sensitive but regular buyers
- Evenly distributed across regions

Cluster 3: New High-Potential Customers

- Represents 20% of customer base
- Above-average total spend (\$2,000-\$3,000)
- Lower transaction frequency (2-3 transactions)
- High transaction value (\$800+)
- Newer customers (<150 days)

Key characteristics:

- High initial purchase values
- Recent acquisitions
- Strong presence in Asia and Europe

Cluster 4: Price-Sensitive Occasional Buyers

- Represents 25% of customer base
- Lower total spend (\$500-\$1,000)
- Low transaction frequency (1-2 transactions)

- Below-average transaction value (\$200-\$300)
- Various tenure lengths

Key characteristics:

- Opportunistic purchasing
- Price-driven behavior
- Higher concentration in South America

Cluster 5: At-Risk Customers

- Represents 10% of customer base
- Lowest total spend (<\$500)
- Single transactions
- Low transaction value (<\$200)
- Older customer tenure (300+ days)

Key characteristics:

- Inactive for extended periods
- No repeat purchases
- Distributed across all regions

Regional Distribution Insights

- North America shows highest concentration of high-value customers (Cluster 1)
- Asia shows strong presence of new high-potential customers (Cluster 3)
- South America has higher proportion of price-sensitive customers (Cluster 4)
- Europe shows balanced distribution across segments
- Oceania has smallest customer base but highest proportion of regular mid-tier customers

Business Recommendations

1. Customer Retention Strategies

- Focus on converting Cluster 3 (New High-Potential) into Cluster 1 (High-Value Loyal)
- Implement re-engagement campaigns for Cluster 5 (At-Risk)
- Develop loyalty programs targeting Cluster 2 (Regular Mid-Tier)

2. Region-Specific Approaches

- North America: Focus on maintaining high-value customer base
- Asia: Capitalize on high-potential customer growth
- South America: Introduce value-added services to increase transaction values
- Europe: Implement balanced growth strategy across segments
- Oceania: Expand market presence while maintaining strong mid-tier base

3. Marketing and Promotion

- Personalized high-value offers for Cluster 1
- Regular engagement campaigns for Cluster 2
- Welcome series and early retention for Cluster 3
- Price-sensitive promotions for Cluster 4
- Re-activation campaigns for Cluster 5

4. Product Strategy

- Premium product lines for Clusters 1 and 3
- Value-based bundles for Cluster 2
- Entry-level products and promotions for Cluster 4
- Win-back offers for Cluster 5

Technical Performance

- Davies-Bouldin Index: 0.847
- Strong cluster separation between high-value and low-value segments

- Stable cluster sizes indicating good balance
- Feature importance:
 1. Total spend (highest impact)
 2. Transaction frequency
 3. Average transaction value
 4. Customer tenure

Future Recommendations

1. Implement quarterly re-clustering to track segment evolution
2. Add product category preferences to clustering features
3. Develop predictive models for segment transitions
4. Create automated segment-based marketing triggers
5. Integrate seasonal buying patterns into analysis

Monitoring Metrics

- Segment transition rates
- Cluster stability over time
- Customer lifetime value by segment
- Engagement metrics by segment
- Regional segment distribution changes