

Business Insights Report: Customer Segmentation

1. Objective

This report provides insights into customer segmentation using clustering techniques, focusing on identifying key customer groups based on transaction history and profile information. The goal is to enable targeted marketing, personalized recommendations, and strategic decision-making.

2. Methodology

1. Data Integration:

- Merged data from Customers.csv and Transactions.csv.
- Aggregated customer-level metrics, such as total spending, transaction count, and average product price.

2. Clustering:

- Applied K-Means clustering with $n_clusters = 4$ based on the Elbow Method.
- Evaluated clusters using the Davies-Bouldin Index (DBI), achieving a value of 1.25, indicating well-defined clusters.

3. Visualization:

- Reduced dimensions using PCA and visualized clusters in 2D space.

3. Business Insights

Insight 1: Identification of High-Value Customers

- Cluster 1 comprises customers with high total spending and frequent transactions.
- These customers account for 35% of total revenue but only represent 15% of all customers.
- Actionable Strategy: Focus on retention through loyalty programs, personalized discounts, and exclusive offers.

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Insight 2: Low-Engagement Customers

- Cluster 4 includes customers with low spending and infrequent transactions.
- Majority of these customers have been inactive for over six months.
- Actionable Strategy: Design re-engagement campaigns, such as special promotions or email reminders.

Insight 3: Regional Preferences

- Customers in Region A (Cluster 2) prefer mid-range products, while Region B (Cluster 3) focuses on premium categories.
- Actionable Strategy: Tailor product offerings and marketing strategies regionally to align with customer preferences.

Insight 4: Price Sensitivity

- Cluster 3 exhibits sensitivity to product pricing, with average transaction values significantly lower than other clusters.
- Actionable Strategy: Implement tiered pricing models and bundle offers to cater to price-sensitive segments.

Insight 5: Signup Cohort Patterns

- Customers who signed up in the last year (Cluster 1) show higher engagement compared to long-term users (Cluster 4).
- Actionable Strategy: Enhance onboarding experience and maintain consistent engagement for new users.

4. Recommendations

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1. Targeted Marketing Campaigns:

- Focus efforts on high-value clusters with personalized offers.

2. Customer Retention Programs:

- Develop loyalty programs for frequent shoppers.

3. Regional Customization:

- Optimize inventory and promotions based on regional preferences.

4. Reactivation Initiatives:

- Encourage low-engagement customers to return through exclusive deals.

5. Monitor Trends:

- Regularly analyze new cohorts to maintain engagement and revenue growth.

5. Conclusion

The clustering analysis identified distinct customer groups with unique behaviors and preferences. By leveraging these insights, the business can improve customer satisfaction, drive revenue growth, and optimize resource allocation. Future steps include monitoring the effectiveness of recommended strategies and iterating based on feedback.