

Customer Behavior Analysis & Strategic Recommendations

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1. Executive Summary

This report presents an in-depth analysis of customer behavior using data-driven segmentation techniques. The objective is to identify key customer groups and provide actionable recommendations to optimize marketing strategies and enhance business profitability.

2. Data Overview & Methodology

2.1 Dataset Description

The dataset contains **8,950 customers**, with attributes related to their **spending habits, credit usage, and payment behavior**. The key variables include:

- **BALANCE & CREDIT_LIMIT**: Indicate financial standing.
- **PURCHASES & INSTALLMENTS_PURCHASES**: Show spending preferences.
- **CASH_ADVANCE & PAYMENTS**: Reflect financial habits.
- **TENURE**: Captures customer longevity.

2.2 Data Processing & Cleaning

- Missing values were handled by **imputing medians** for numerical columns.
- Data was **scaled using StandardScaler** to standardize numeric features.
- **Customer ID was dropped** as it is not useful for clustering.

2.3 Clustering & Analysis Approach

To segment customers:

1. **Elbow Method & Silhouette Score** determined the optimal number of clusters.
2. **KMeans Clustering** identified 4 customer segments.
3. **Cluster profiling** analyzed each group's characteristics.

3. Findings: Customer Segments & Insights

Segment 1: High Spenders ("Premium Patrons")

- **Behavior**: High purchase amounts, frequent transactions, full payments.
- **Marketing Recommendation**: Offer **exclusive loyalty programs** and premium benefits.

Segment 2: Installment Buyers ("Planned Purchasers")

- **Behavior:** Prefer installment-based payments, moderate spending.
- **Marketing Recommendation:** Provide **installment-based discounts** and flexible financing options.

Segment 3: Cash Advance Users ("Credit Seekers")

- **Behavior:** High cash advance dependency, potential financial risk.
- **Marketing Recommendation:** Implement **financial literacy programs** and alternative credit products.

Segment 4: Low Engagement Users ("Occasional Shoppers")

- **Behavior:** Infrequent purchases, low interaction with offerings.
- **Marketing Recommendation:** Launch **re-engagement campaigns** with personalized promotions.

4. Data-Driven Recommendations

4.1 Customer Retention & Engagement

- **Personalized Offers:** Tailor promotions based on spending behavior.
- **Behavior-Based Loyalty Programs:** Reward frequent high spenders and encourage retention.
- **Predictive Modeling for Churn:** Identify at-risk customers using ML models.

4.2 Revenue Optimization Strategies

- **Increase Credit Utilization Awareness:** Educate users on benefits of responsible credit usage.
- **Upselling & Cross-Selling:** Suggest related products based on purchase behavior.
- **Segment-Specific Marketing:** Develop customized campaigns for each segment.

5. Conclusion & Business Impact

This analysis provides valuable insights into customer behavior. By implementing these recommendations, the company can:

- ✓ **Enhance customer engagement** through targeted marketing.
- ✓ **Improve financial health** by promoting better spending habits.
- ✓ **Increase profitability** by optimizing credit utilization and cross-selling opportunities.

Next steps include **integrating predictive analytics** for churn detection and deploying **data-driven marketing campaigns** to maximize customer retention and business growth.

End of Report