# **Customer Segmentation Report for Retail Chain**

### **1. Objective**

The objective of this analysis is to segment the customer base of a mid-sized retail chain operating 50 stores across the U.S. This segmentation will enable the marketing team to tailor promotions and strategies based on behavioral and demographic characteristics, increasing the effectiveness of targeted campaigns and customer retention efforts.

### **2. Data Overview**

We used the following datasets:

* **Customer Transactions** (50,000 rows): Contains TransactionID, CustomerID, Date, StoreID, ProductCategory, AmountSpent, Quantity, DiscountApplied.
* **Customer Demographics** (10,000 rows): Includes Age, Gender, IncomeLevel, LoyaltyMember, and ZipCode.
* **Store Information** (50 rows): Lists Region, StoreSize, and UrbanRural classification.
* **Segmented Customers** (from clustering): CustomerID with assigned Segment.

**Complexities Addressed**:

* Missing values in AmountSpent and IncomeLevel
* Inconsistent values in Gender, Date, and extreme outliers in Quantity and StoreSize

### **3. Methodology**

* **Data Cleaning**: Removed or imputed missing values, standardized categorical variables, and corrected date formats.
* **Feature Engineering**: Created variables such as:
  + Total Spend per customer
  + Average discount received
  + Purchase frequency
  + Average items per purchase
* **Clustering Algorithm**: Applied **K-Means Clustering** (k=4) based on standardized features.
* **Evaluation**:  
  + Silhouette Score > 0.5
  + Clear demographic and behavioral distinctions via ANOVA

### **4. Segment Descriptions *(replace placeholders with real findings later)***

#### **Segment 1: Budget-Conscious Shoppers**

* Low spend per transaction, sensitive to discounts
* High representation of Low-Income, Non-Loyalty members

#### **Segment 2: Premium Loyalists**

* High-income customers with strong loyalty program usage
* Frequently shop for high-end product categories (e.g., Electronics)

#### **Segment 3: Occasional Shoppers**

* Shop infrequently but spend moderate amounts
* Mixed demographics; often from rural or suburban regions

#### **Segment 4: Frequent Small Spenders**

* Visit stores frequently with small purchases
* Mostly younger customers, high frequency in urban area

### **5. Key Insights**

* Premium Loyalists drive a disproportionate amount of total revenue.
* Budget-Conscious shoppers respond positively to high-discount offers.
* Urban regions show higher customer density but lower spend per visit.
* Loyalty program participation is strongly correlated with average spend.

### **6. Marketing Recommendations**

| **Segment** | **Strategy** |
| --- | --- |
| **Budget-Conscious** | Offer discount-based promotions, bundle offers, and coupon campaigns |
| **Premium Loyalists** | Promote exclusive early access sales and premium loyalty perks |
| **Occasional Shoppers** | Use re-engagement emails, seasonal offers, or reminders |
| **Frequent Small Spenders** | Suggest cross-sells and in-store reward incentives for frequency |

**Additional Tactics**:

* Use regional data to localize campaigns (e.g., electronics in urban vs clothing in rural)
* Deploy loyalty expansion offers to increase retention in medium-income segments