# Customer Segmentation Analysis

## 1. Number of Customer Segments

Using the Elbow Method on the dataset (Annual Income and Spending Score), we observed that the optimal number of clusters is 5.  
  
Thus, there are 5 distinct customer segments.

## 2. Key Characteristics of Each Segment

Cluster | Characteristics | Marketing Strategy  
------- | ---------------- | ------------------  
0 | High income, High spending score | Premium promotions, Loyalty programs  
1 | Low income, Low spending score | Budget-friendly products, Discounts  
2 | Middle income, Average spending | Moderate promotions, Retention focus  
3 | Young, Moderate income, High spending | Trendy offers, New arrivals  
4 | High income, Low spending score | Personalized engagement to boost spending

- Cluster 0 is the most valuable group: they spend a lot and can afford premium products.  
- Cluster 1 is more price-sensitive.  
- Cluster 4 needs marketing efforts to convert income into higher spending.

## 3. Features Influencing Segmentation Most

- Annual Income and Spending Score were the two strongest features influencing the cluster formations.  
- Age was less influential but helped differentiate young spenders from older moderate spenders.  
- Spending Score was the most direct driver of cluster differences.

## 4. Identifying High-Value Customers

- Cluster 0 represents high-value customers:  
 - High Annual Income  
 - High Spending Score  
- These customers should be targeted with:  
 - Personalized premium offerings  
 - Exclusive memberships  
 - Early access to sales  
 - Upselling and cross-selling strategies

## Summary

- 5 customer segments were identified.  
- High income, high spending customers are the primary targets for premium marketing.  
- Marketing strategies can now be tailored to each segment to maximize conversion and loyalty.