Project 3

Clustering Analysis Customers Segmentation Report

Interpretation based on Age and Spending Score

cluster_Age_Spending_Score	Age	Annual Income (k$)	Spending Score (1-100)
0	55.708333	54.770833	48.229167
1	43.291667	66.937500	15.020833
2	30.175439	66.070175	82.350877
3	27.617021	53.276596	49.148936

Cluster 0:

 Average Age: 55.71, Average Annual Income: $54.77k, Average Spending Score: 48.23

Customers in this cluster tend to be older (above 55 years old) with moderate annual income and a moderate spending score. They are moderate spenders.

Cluster 1:

Average Age: 43.29, Average Annual Income: $66.94k, Average Spending Score: 15.02

Customers in this cluster are in their 40s, have the highest annual income compared to the other clusters, but they have the lowest spending score. They are not actively spending compared to other clusters.

Cluster 2:

Average Age: 30.18, Average Annual Income: $66.07k, Average Spending Score: 82.35

Customers in this cluster are relatively younger (around 30 years old) compared to cluster 0 and 1, they have a similar annual income to Cluster 1. However, they have the highest spending score, indicating they are enthusiastic shoppers.

Cluster 3:

Average Age: 27.62, Average Annual Income: $53.28k, Average Spending Score: 49.15

Customers in this cluster are the youngest among all clusters with a moderate annual income and a moderate spending score. They have balanced spending habits.

In conclusion, comparing these clusters, Cluster 3 stands out as it has a higher spending score relative to its annual income, indicating a willingness to spend despite their moderate income. Cluster 4 also has a high spending score but with a higher income, making them valuable customers. On the other hand, Clusters 1 and 2 have lower spending scores compared to their incomes, which might require strategies to increase engagement and spending.

Interpretation based on Annual Income and Spending Score

Gender	cluster_Annual_Income_Spending_Score	Age	Annual Income (k$)	Spending Score (1-100)
Female	0	40.895833	55.354167	49.000000
	1	43.250000	90.937500	22.062500
	2	43.214286	27.357143	21.714286
	3	25.461538	25.692308	80.538462
	4	32.190476	86.047619	81.666667
Male	0	45.363636	55.212121	50.272727
	1	39.315789	85.894737	12.947368
	2	48.333333	24.666667	19.666667
	3	25.000000	25.777778	77.666667
	4	33.277778	87.111111	82.666667

Cluster 0 (Female):

Age: 40.90, Annual Income: $55.35k, Spending Score: 49.00

In this cluster, female customers tend to spend money moderately compared to other cluster, their spending habits aligns appropriately with their annual income.

Cluster 1 (Female):

Age: 43.25, Annual Income: $90.94k, Spending Score: 22.06

Female customers in this cluster who are slightly older than female customers in Cluster 0, has the highest annual income score, but very low spending score.

Cluster 2 (Female):

Age: 43.21, Annual Income: $27.36k, Spending Score: 21.71

Females in this cluster are of similar age to females in Cluster 0 and 1. Females in this cluster has very low annual income and the lowest spending score among the female clusters.

Cluster 3 (Female):

Age: 25.46, Annual Income: $25.69k, Spending Score: 80.54

Females in this cluster are the youngest. Despite having low annual income, their spending score is the second highest among females.

Cluster 4 (Female):

Age: 32.19, Annual Income: $86.05k, Spending Score: 81.67

Females here are slightly older than in cluster 3. They have a high annual income and the highest spending score.

Cluster 0 (Male):

Age: 45.36, Annual Income: $55.21k, Spending Score: 50.27

These male customers have a moderate annual income of $55.21k. Their spending score is also moderate at 50.27. They are in their mid-40s, indicating a mature age group.

Cluster 1 (Male):

Age: 39.32, Annual Income: $85.89k, Spending Score: 12.95

These male customers have a relatively high annual income of $85.89k. However, their spending score is the lowest in males clusters at 12.95. They are slightly younger than males in Clusters 0 and 1

Cluster 2 (Male):

Age: 48.33, Annual Income: $24.67k, Spending Score: 19.67

Male customers in this cluster have the lowest annual income among all clusters, at $24.67k.

Their spending score is also relatively low at 19.67. They are the oldest among all clusters.

Cluster 3 (Male):

Age: 25.00, Annual Income: $25.78k, Spending Score: 77.67

Male customers in this cluster have a moderate annual income of $25.78k.

However, their spending score is quite high at 77.67, the second highest after Cluster 4.

This cluster has the lowest average age, with customers around 25 years old.

Cluster 4 (Male):

Age: 33.28, Annual Income: $87.11k, Spending Score: 82.67

These male customers have the highest annual income among all clusters. Their spending score is also the highest at 82.67. They are in their early 30s, indicating a younger and wealthy age group.

In conclusion, comparing these clusters, Cluster 3 stands out as it has a higher spending score relative to its annual income, which might indicate that these customers are more willing to spend despite their moderate income. On the other hand, Cluster 2 has the lowest income and spending score, making it a potential target for improvement in terms of engagement and loyalty.

Recommendations:

1. Exceptional Service: Providing outstanding customer service and addressing concerns promptly.

2. Pricing Strategy: Find a balance between competitive pricing and profitability to retain cost-conscious customers.

3. Strategic Discounts: Offer occasional discounts and coupons to incentivize customer loyalty without compromising profits.

4. Uniqueness: Differentiate your offerings to stand out from competitors.

5. User Experience: Focus on creating a user-friendly website or app for a positive customer experience.

6. Anticipate Needs: Stay ahead by innovating and anticipating customer needs.

7. Show Appreciation: Express gratitude through thank-you notes, special deals, or customer appreciation events.

Resources:

https://www.linkedin.com/pulse/12-recommendations-retain-customers-terence-witten/?trk=pulse-article