מטלה 3

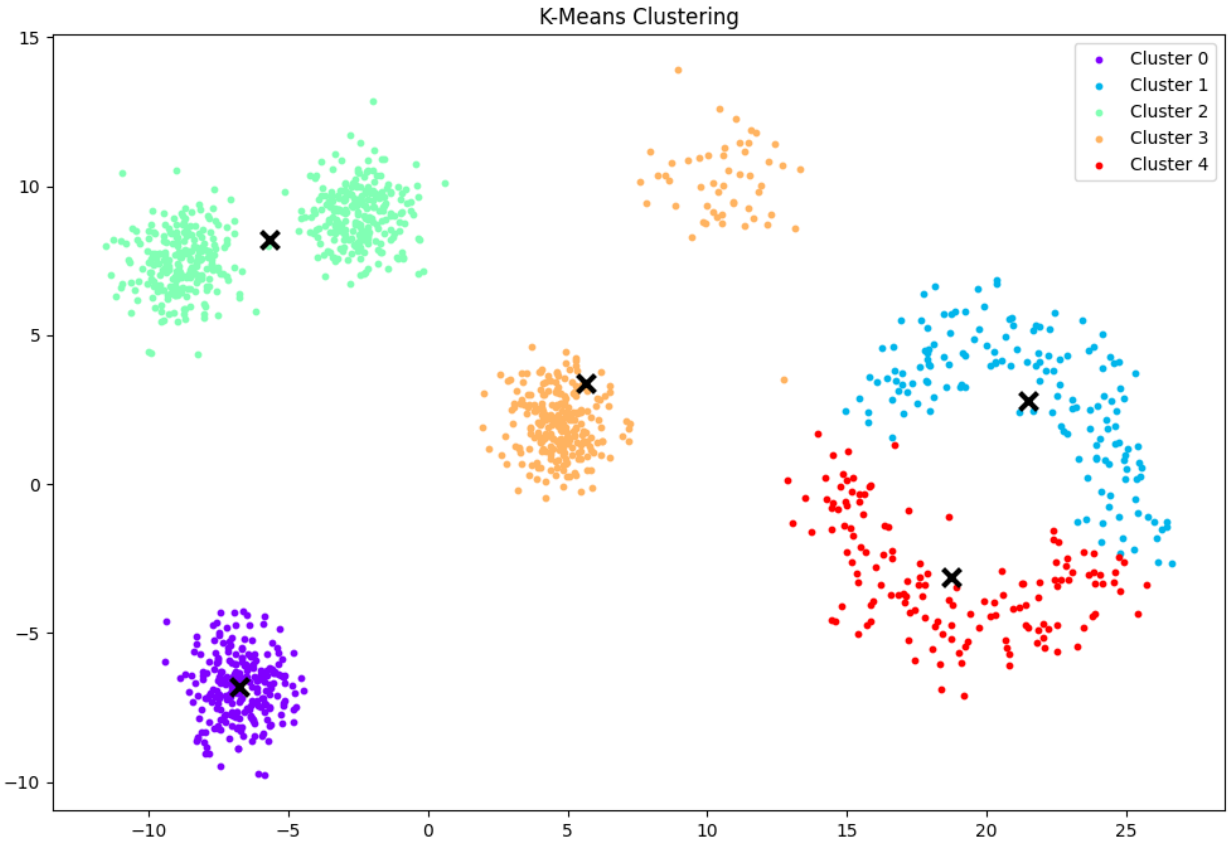
חלק ב:-

KMeans:-

Experiment 1:

k_means = KMeans(n_clusters = 5, random_state = 42)

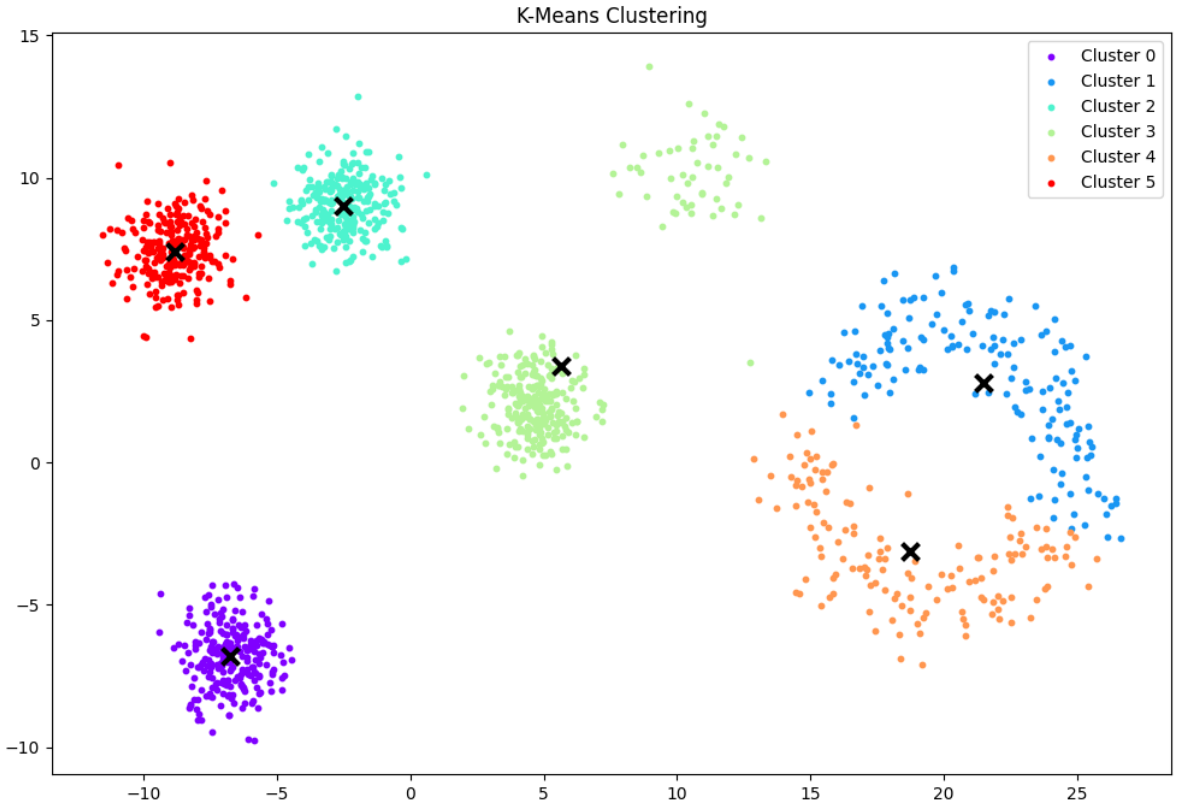
Silhouette score = 0.6432758294253328



Experiment 2:

k_means = KMeans(n_clusters = 6, random_state = 42)

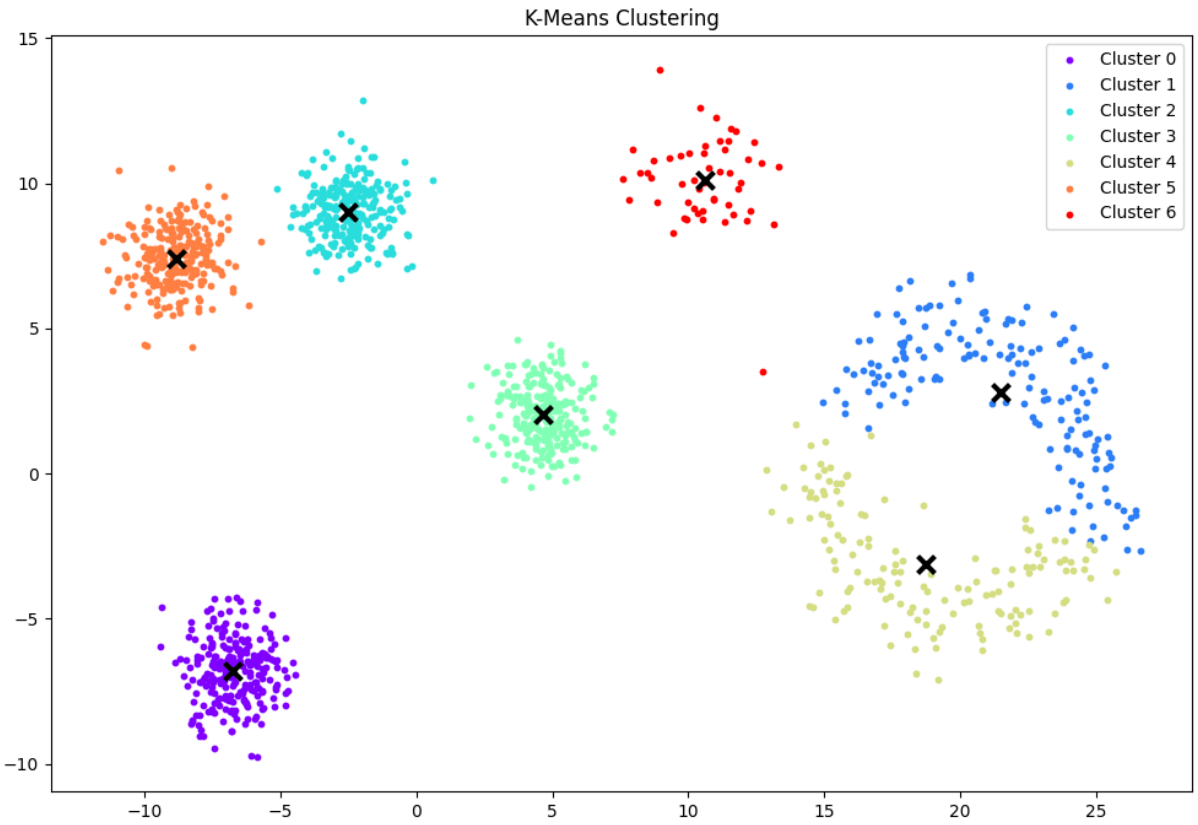
Silhouette score = 0.6605985626907828



Experiment 3:

k_means = KMeans(n_clusters = 7, random_state = 42)

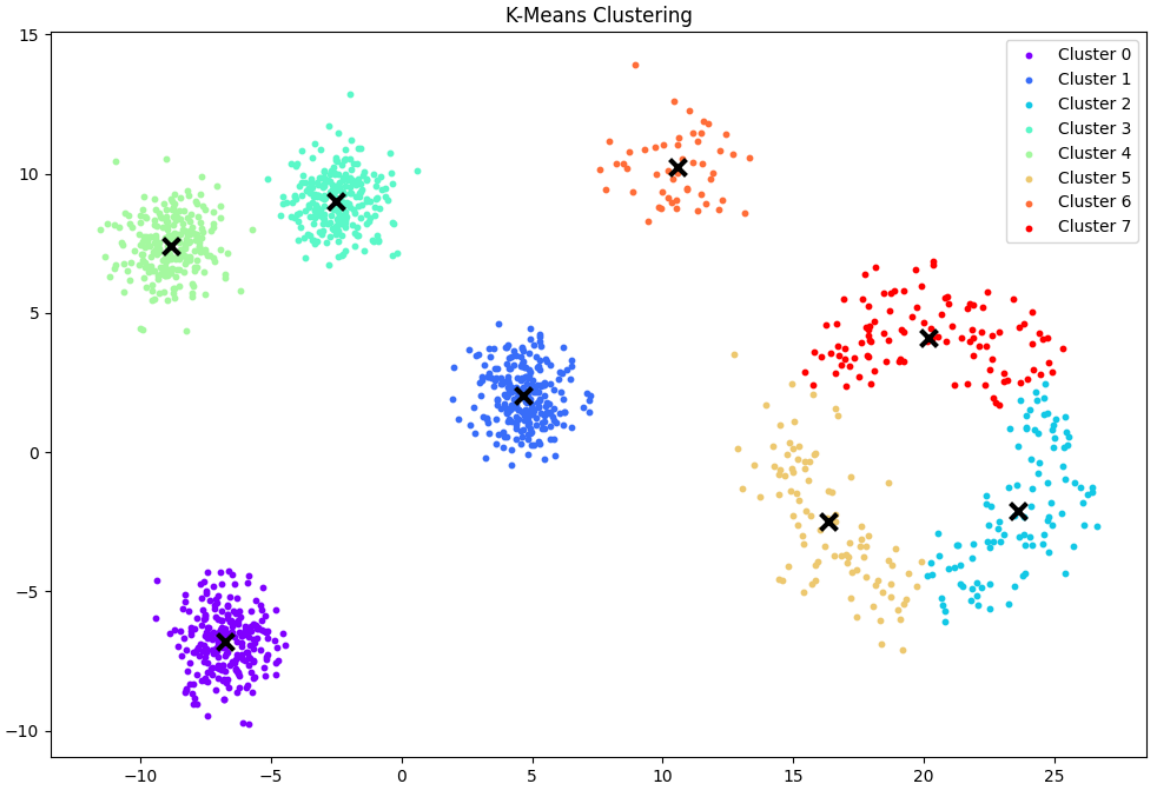
Silhouette score = 0.7026041646015059



Experiment 4:

k_means = KMeans(n_clusters = 8, random_state = 42)

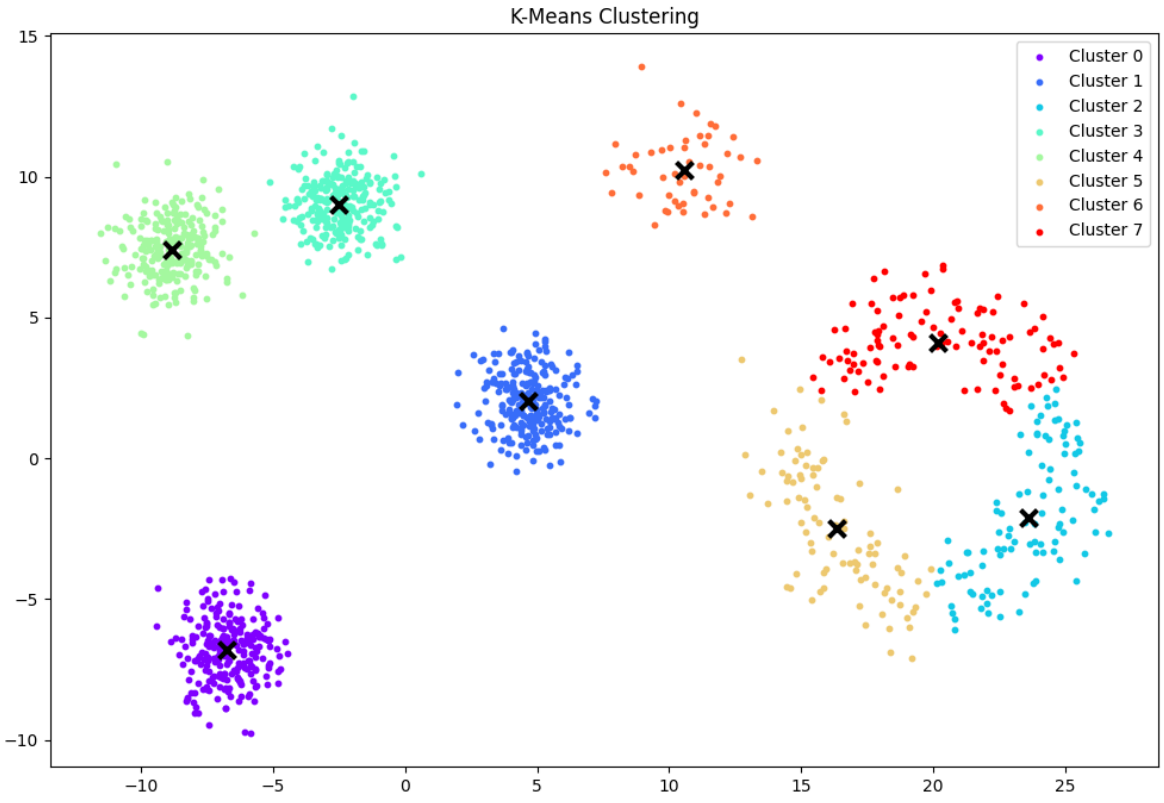
Silhouette score = 0.716259254869025



Experiment 5:

k_means = KMeans(n_clusters = 8, random_state = 42,algorithm='elkan',max_iter=400)

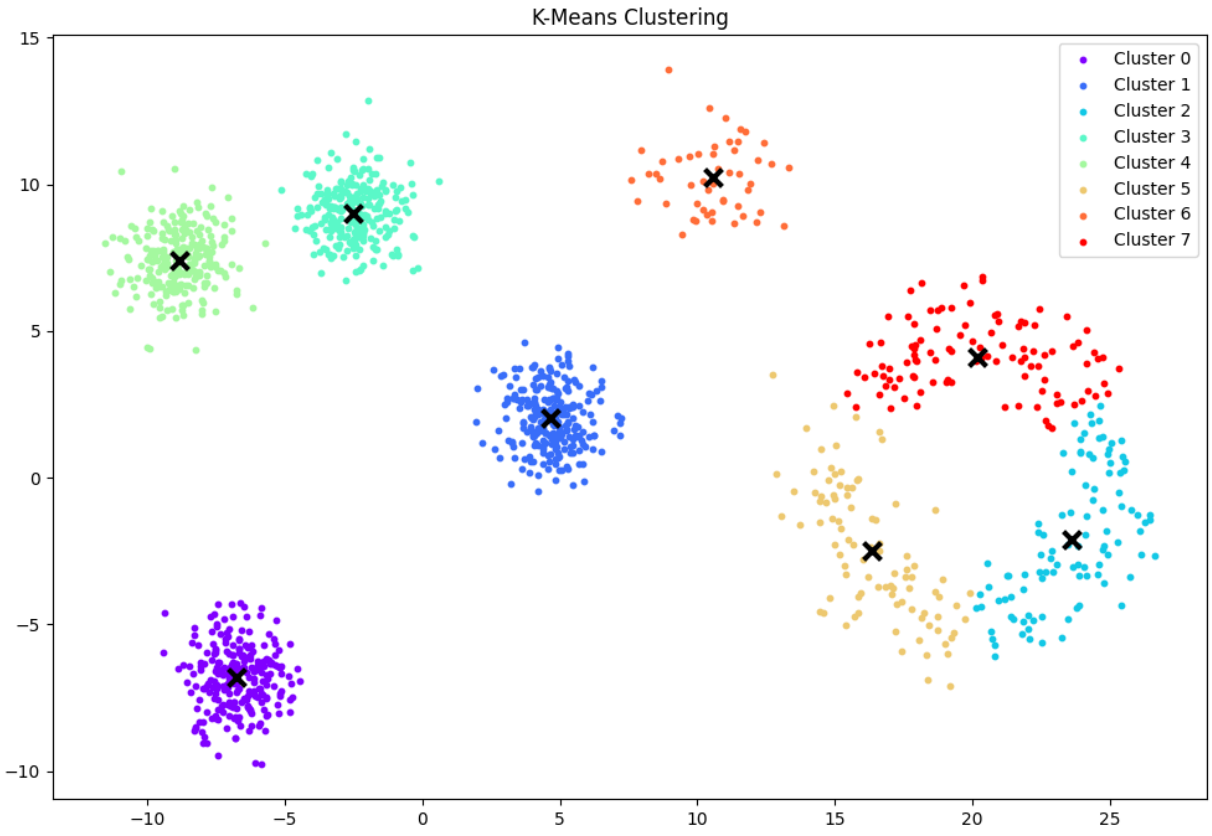
Silhouette score = 0.716259254869025



Experiment 6:

k_means = KMeans(n_clusters = 8, random_state = 42,verbose=3)

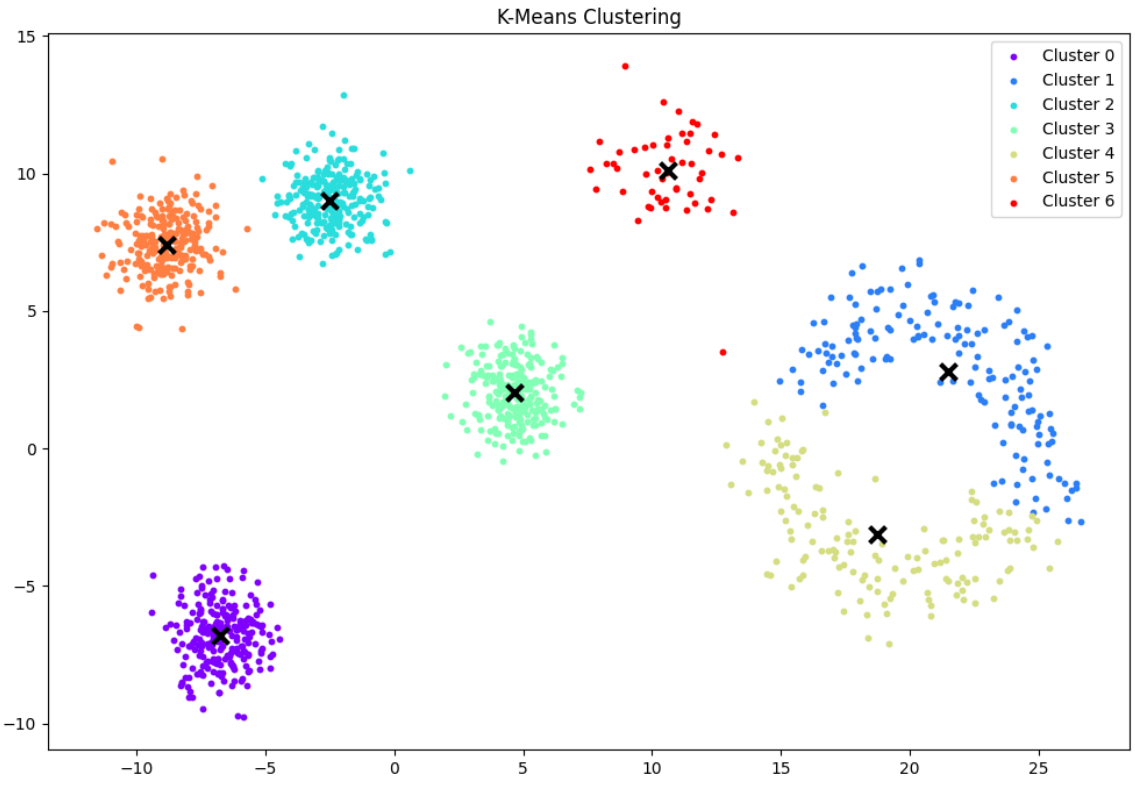
Silhouette score = 0.716259254869025



Experiment 7:

k_means = KMeans(n_clusters = 7, random_state = 42,max_iter=200)

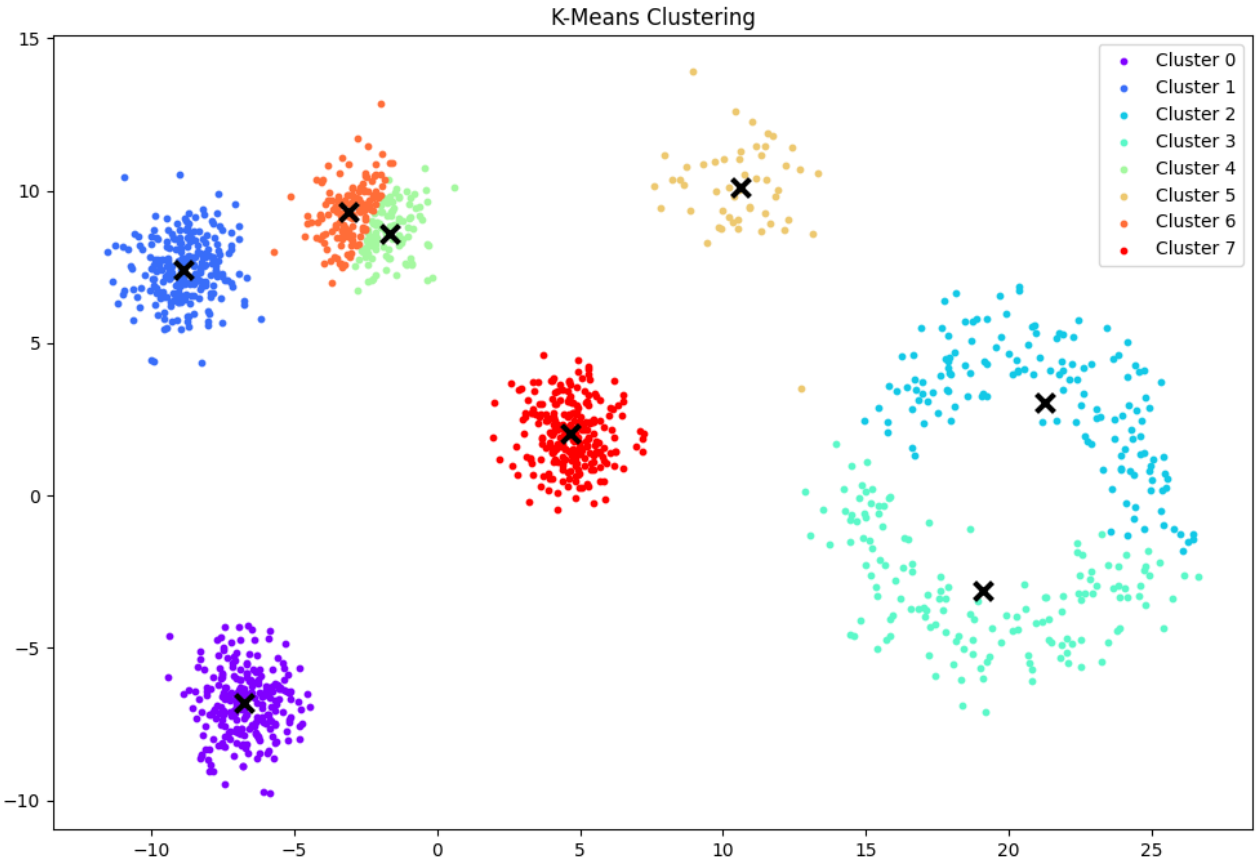
Silhouette score = 0.7026041646015059



Experiment 8:

k_means = KMeans(n_clusters = 8, random_state = 42,init='random')

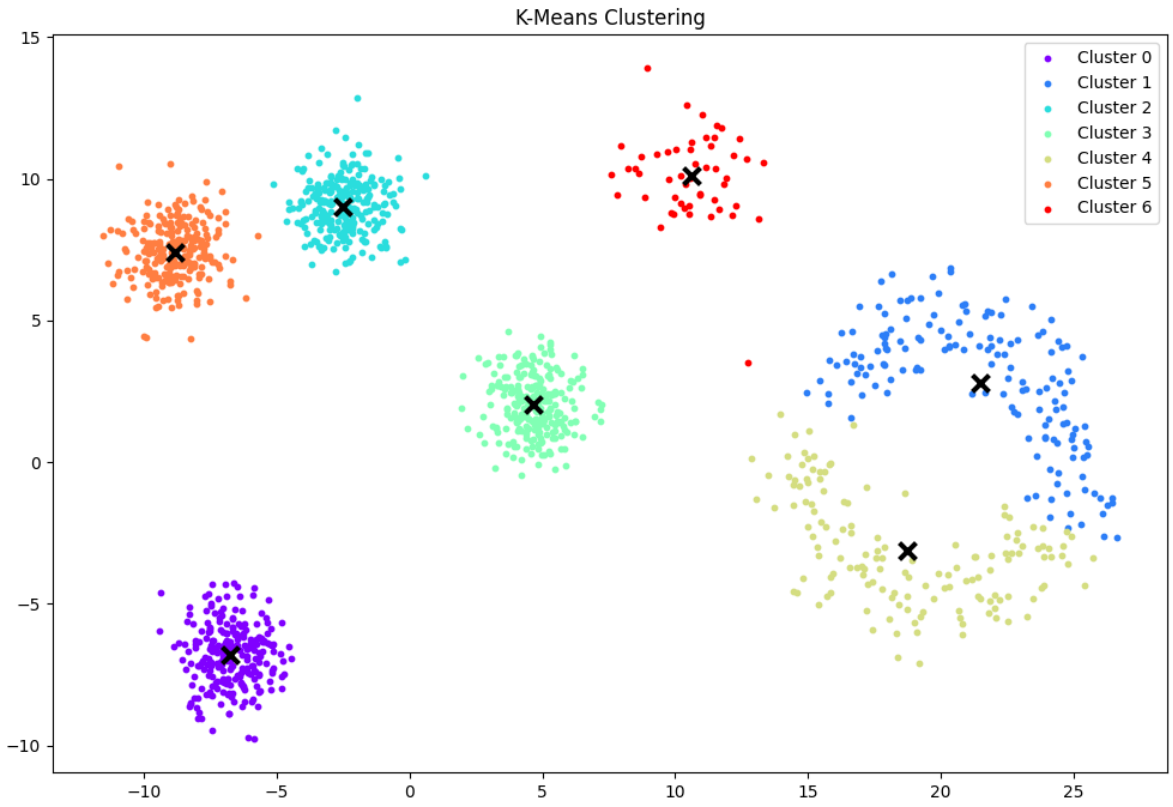
Silhouette score = 0.6178145880678158



Experiment 9:

k_means = KMeans(n_clusters = 7, random_state = 42,n_init=18)

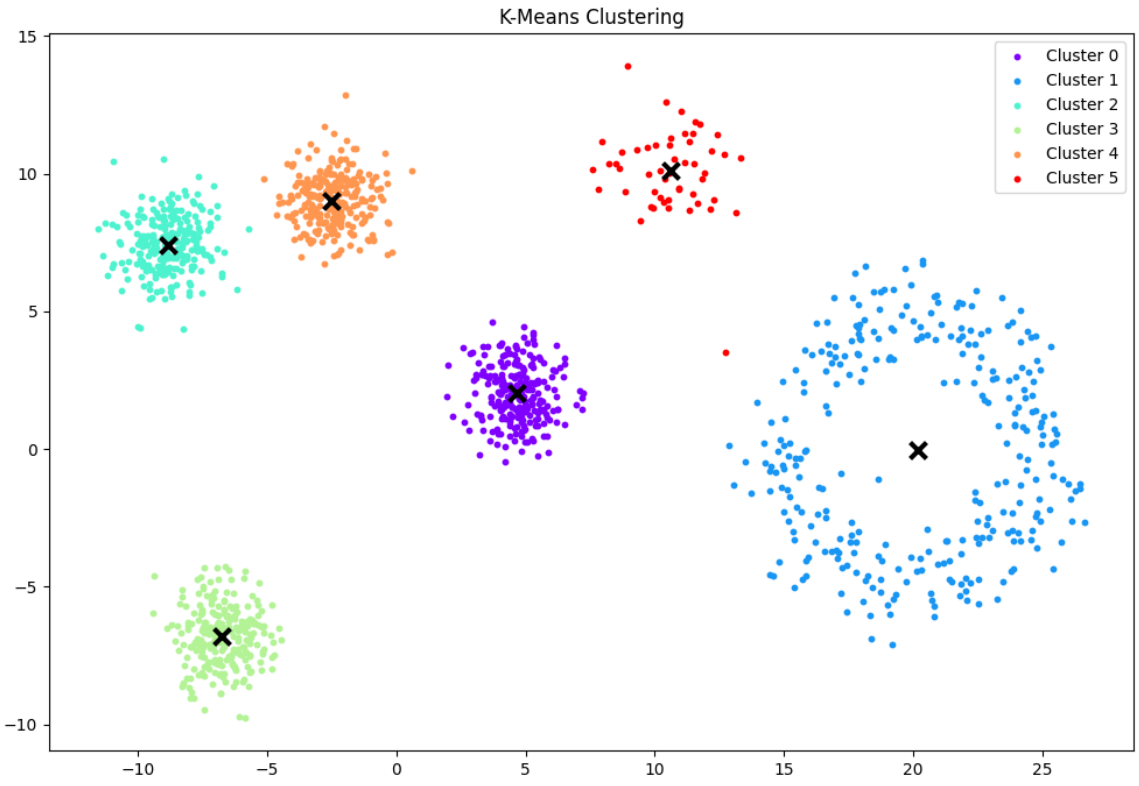
Silhouette score = 0.7026041646015059



Experiment 10:

k_means = KMeans(n_clusters = 6, random_state = 42,n_init=18)

Silhouette score = 0.7251181630059241

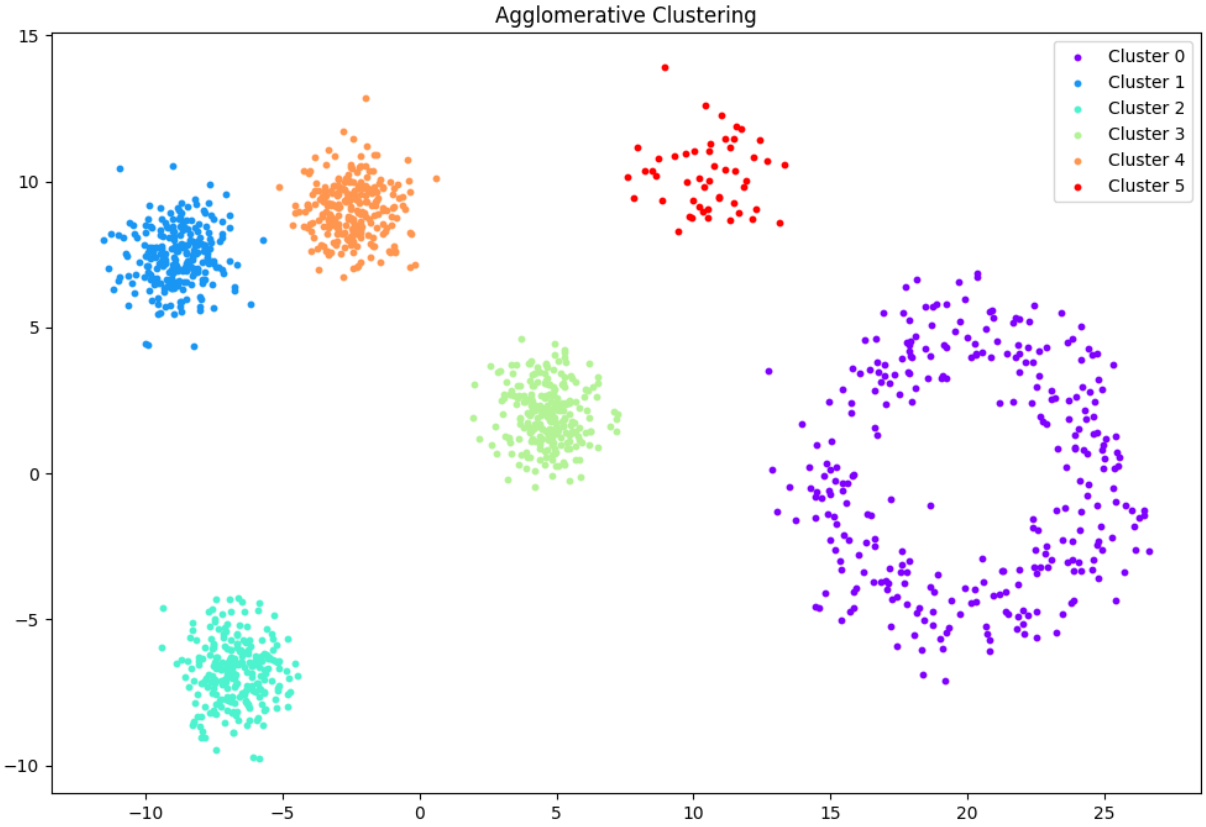


Agglomerative Clustering:-

Experiment 1:

hierarchical_cluster = AgglomerativeClustering(n_clusters=6)

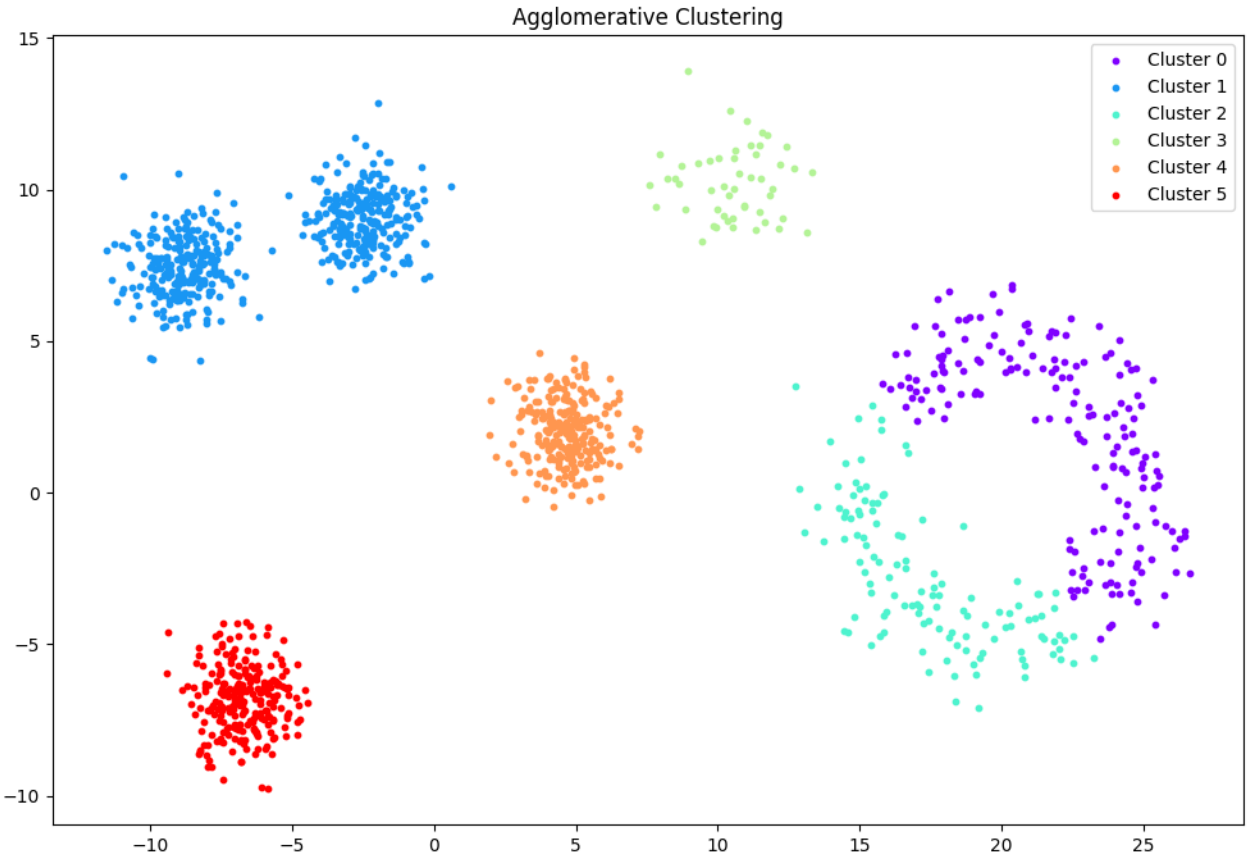
Silhouette score = 0.7256900714288006



Experiment 2:

hierarchical_cluster = AgglomerativeClustering(n_clusters=6,linkage='average')

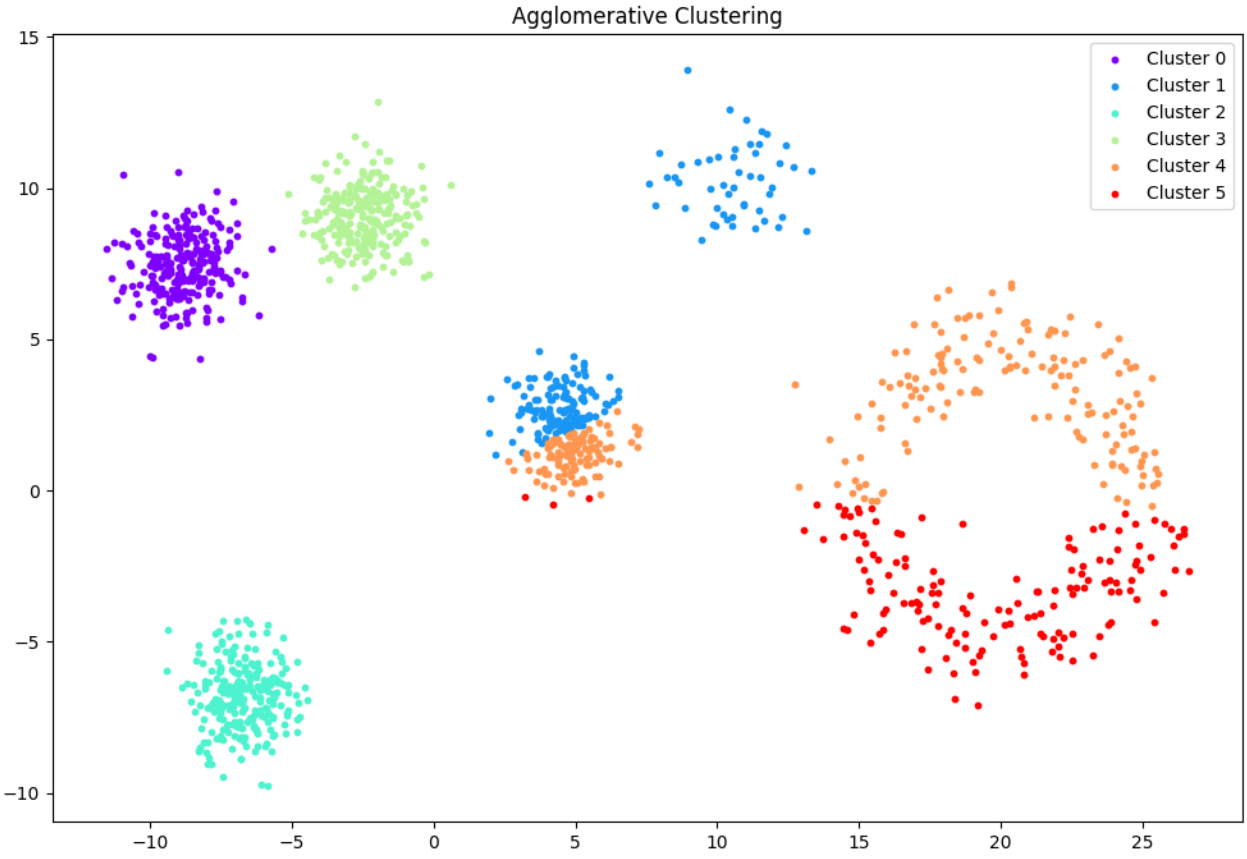
Silhouette score = 0.6680458764033119



Experiment 3:

hierarchical_cluster = AgglomerativeClustering(n_clusters=6,linkage='average',metric='cosine')

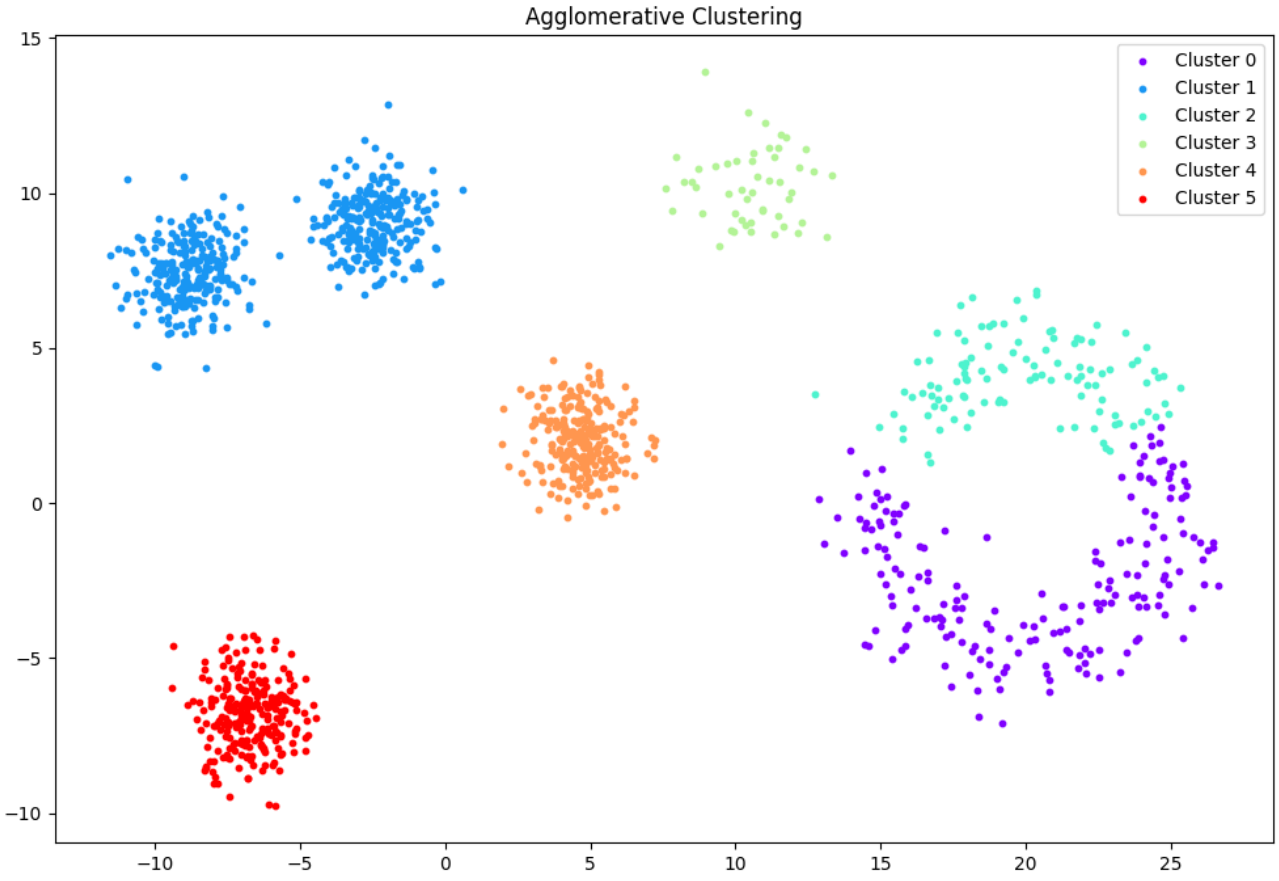
Silhouette score = 0.504273692078222



Experiment 4:

hierarchical_cluster = AgglomerativeClustering(n_clusters=6,linkage='average',metric='manhattan')

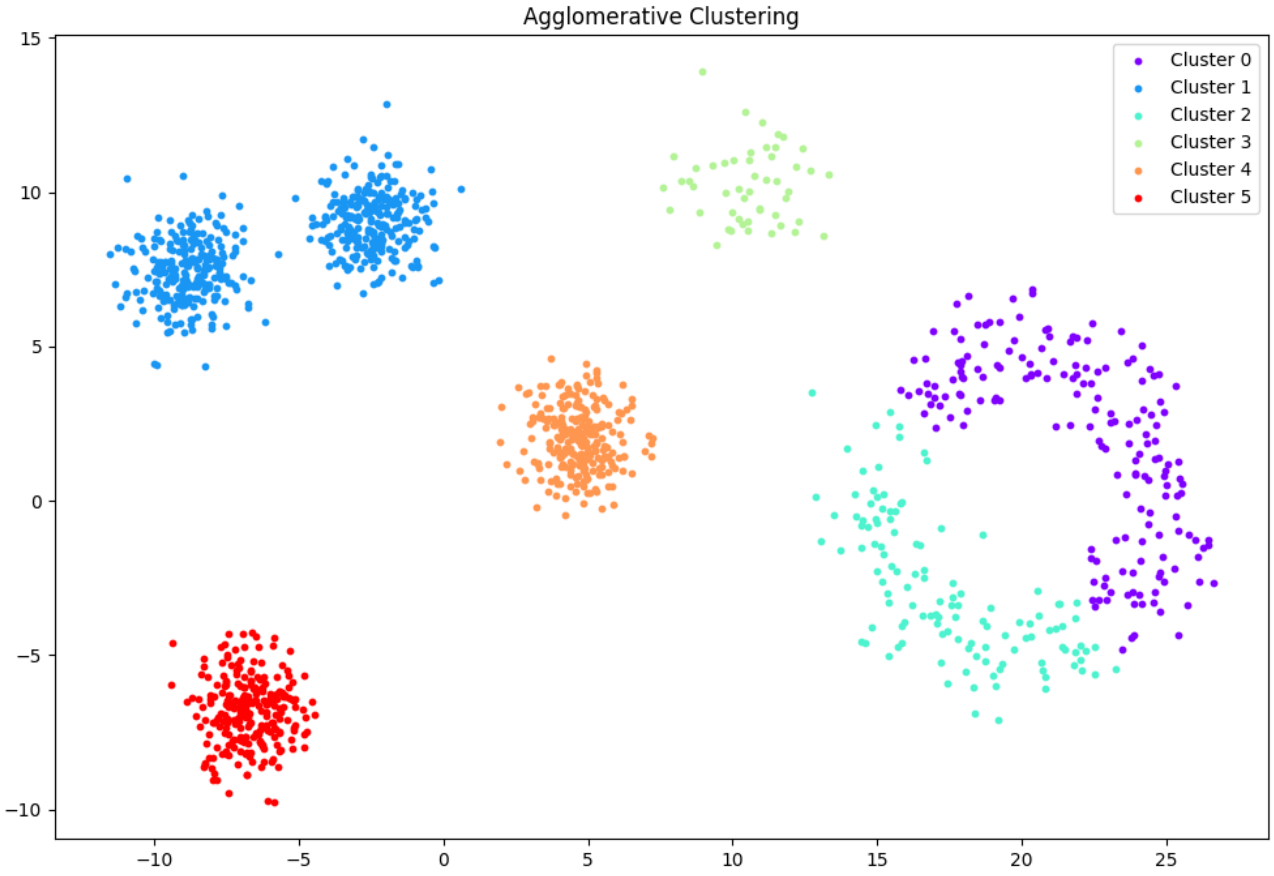
Silhouette score = 0.6622988885587945



Experiment 5:

hierarchical_cluster = AgglomerativeClustering(n_clusters=6,linkage='average',metric='l2')

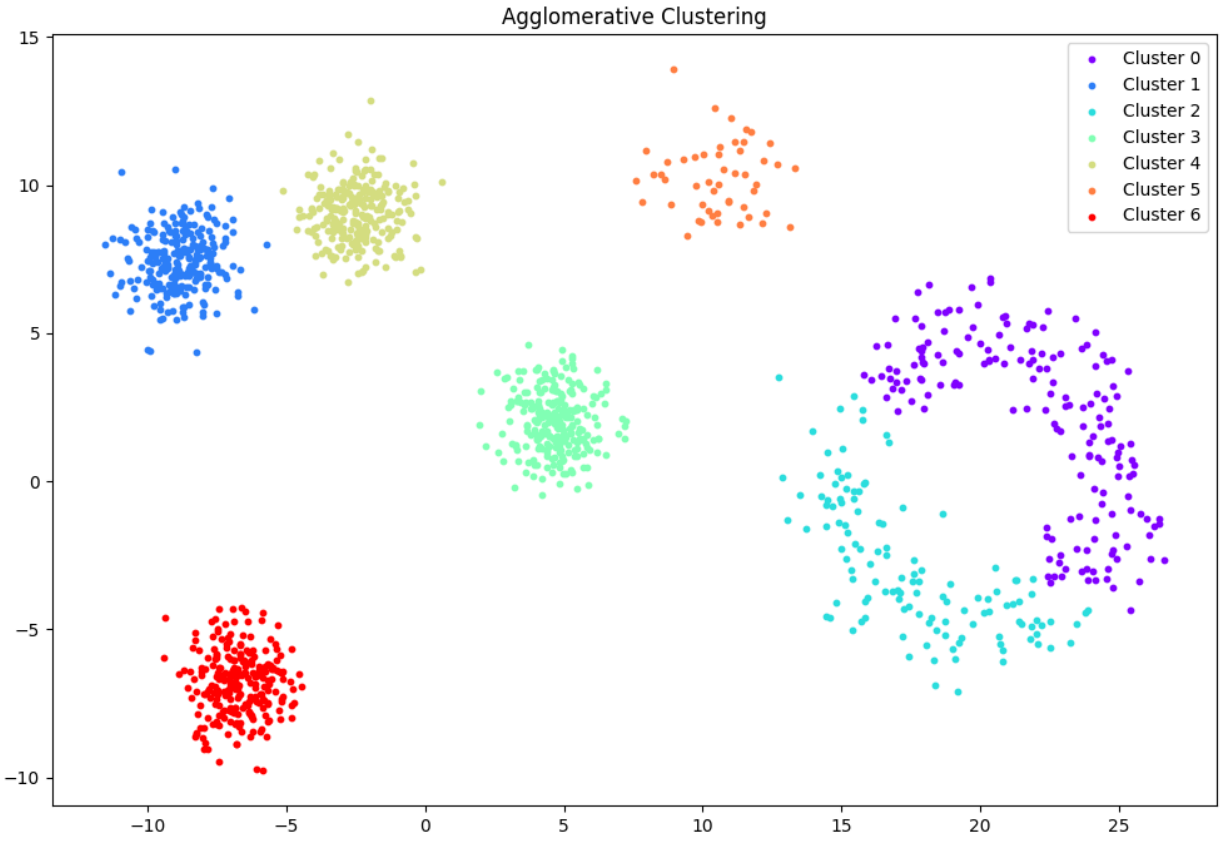
Silhouette score = 0.6680458764033119



Experiment 6:

hierarchical_cluster = AgglomerativeClustering(n_clusters=7)

Silhouette score = 0.7014960182059224

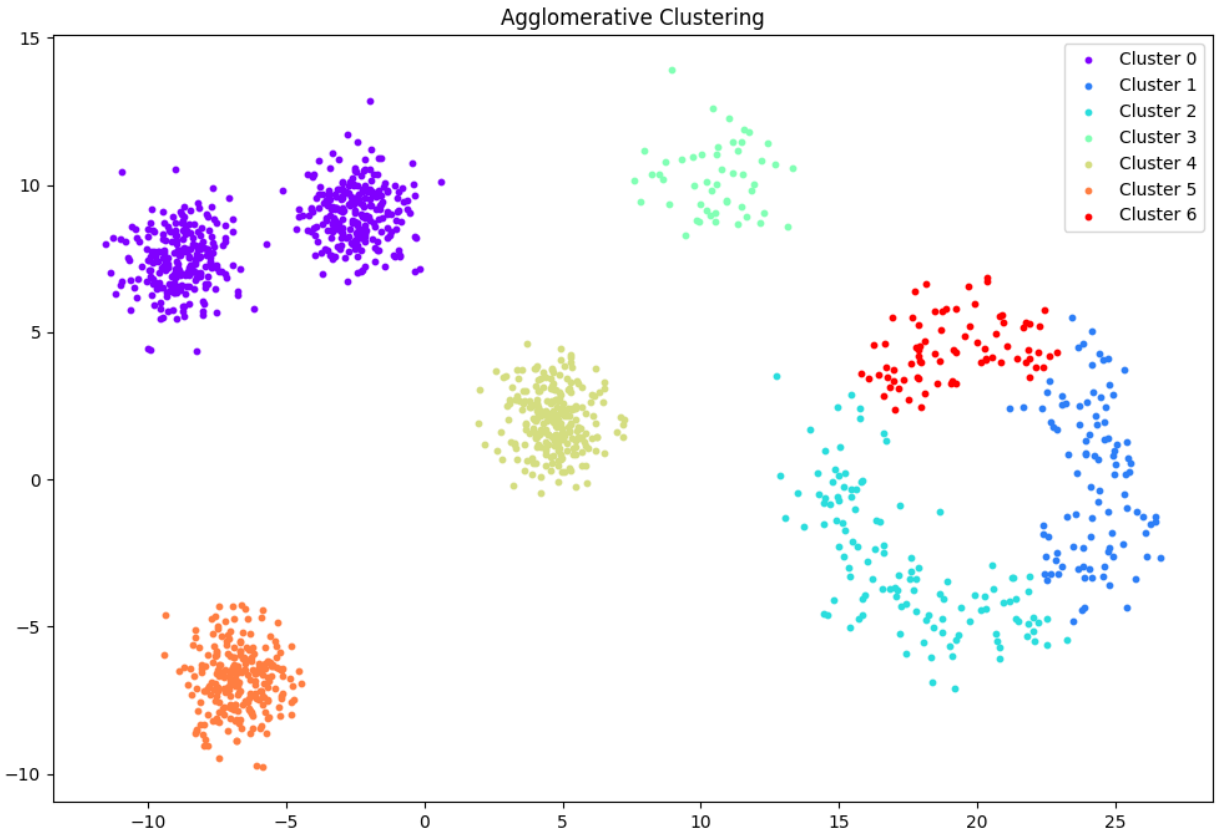


Experiment 7:

hierarchical_cluster = AgglomerativeClustering(n_clusters=7,

linkage= 'average',metric='l2')

Silhouette score = 0.6765904629884553



Experiment 8:

hierarchical_cluster = AgglomerativeClustering(n_clusters=7

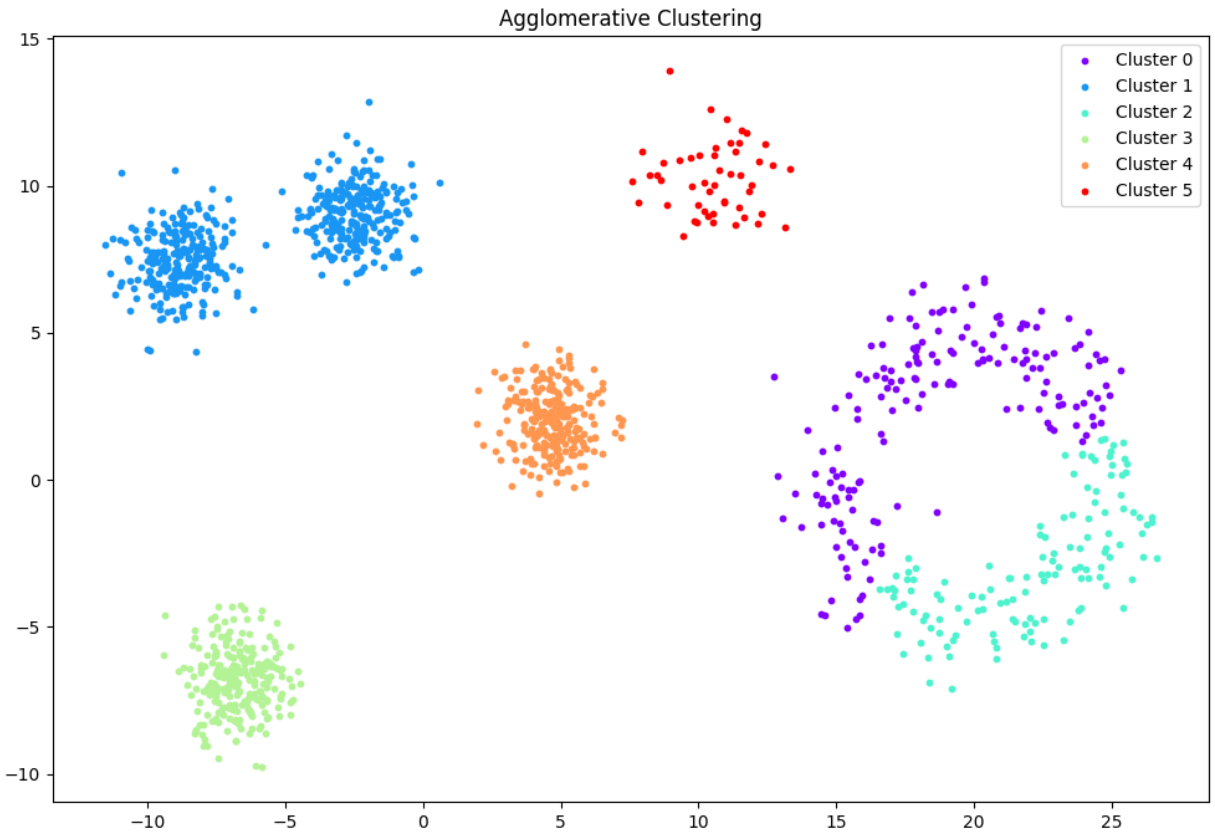
,linkage= 'complete')

Silhouette score = 0.668466237784836

Experiment 9:

hierarchical_cluster = AgglomerativeClustering(n_clusters=6,linkage= 'complete')

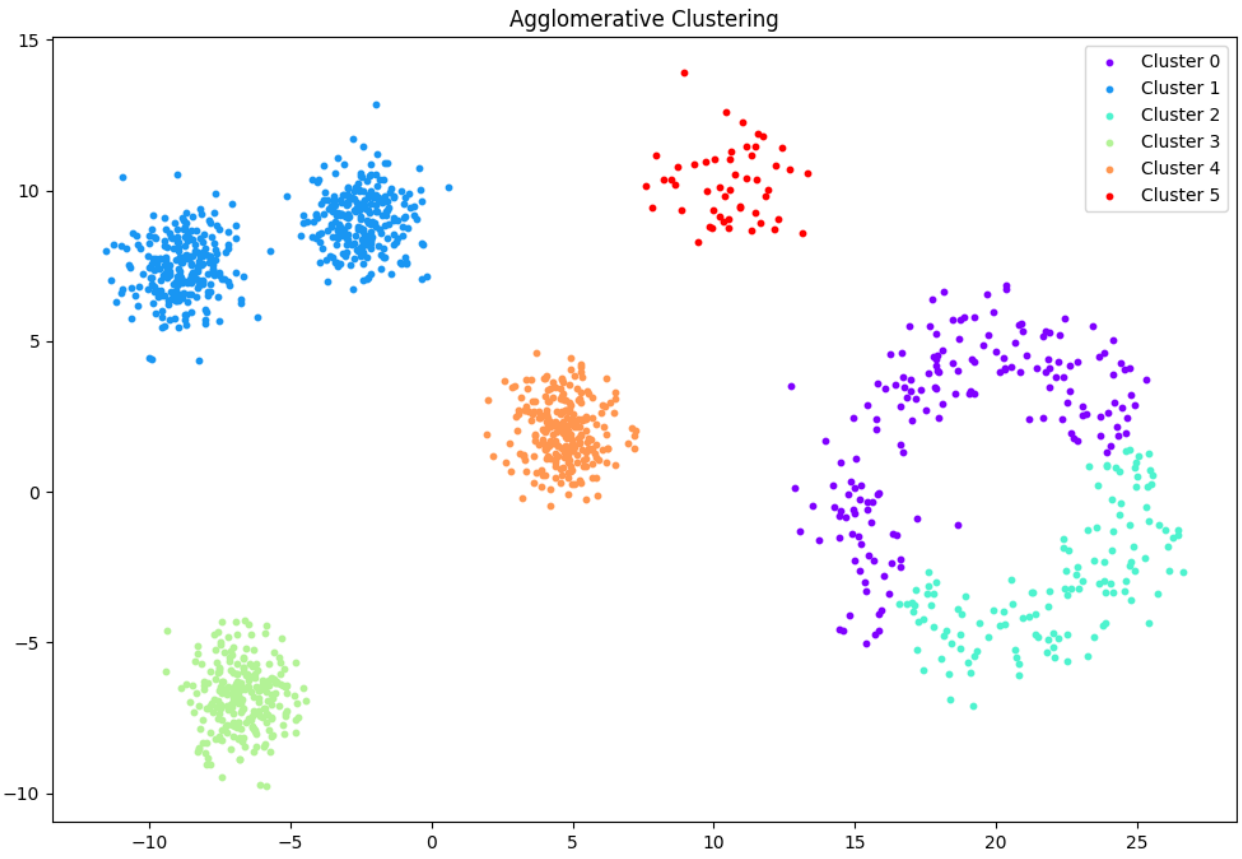
Silhouette score = 0.6594689980695821



Experiment 10:

hierarchical_cluster =
AgglomerativeClustering(n_clusters=6,metric='l2',linkage='complete')

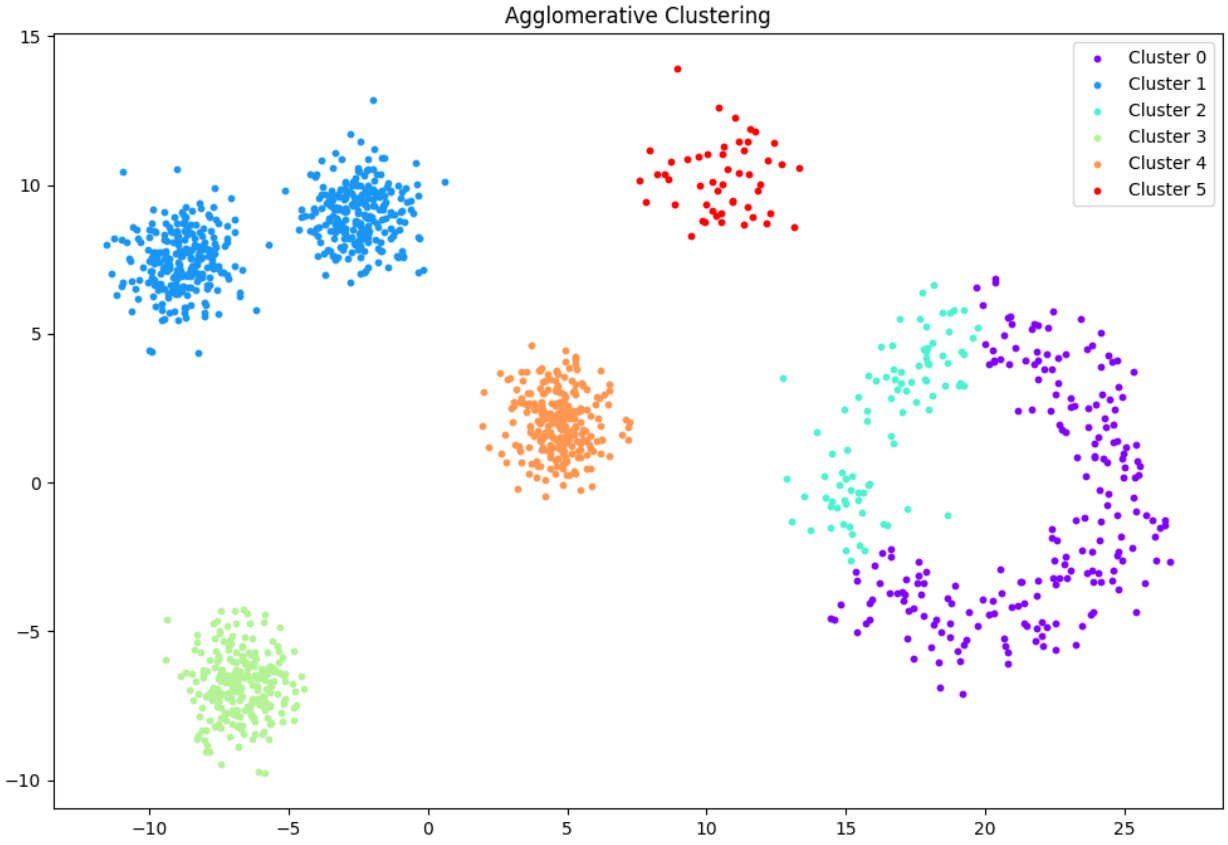
Silhouette score = 0.6594689980695821



Experiment 11:

hierarchical_cluster = AgglomerativeClustering(n_clusters=6,metric='manhattan',linkage='complete')

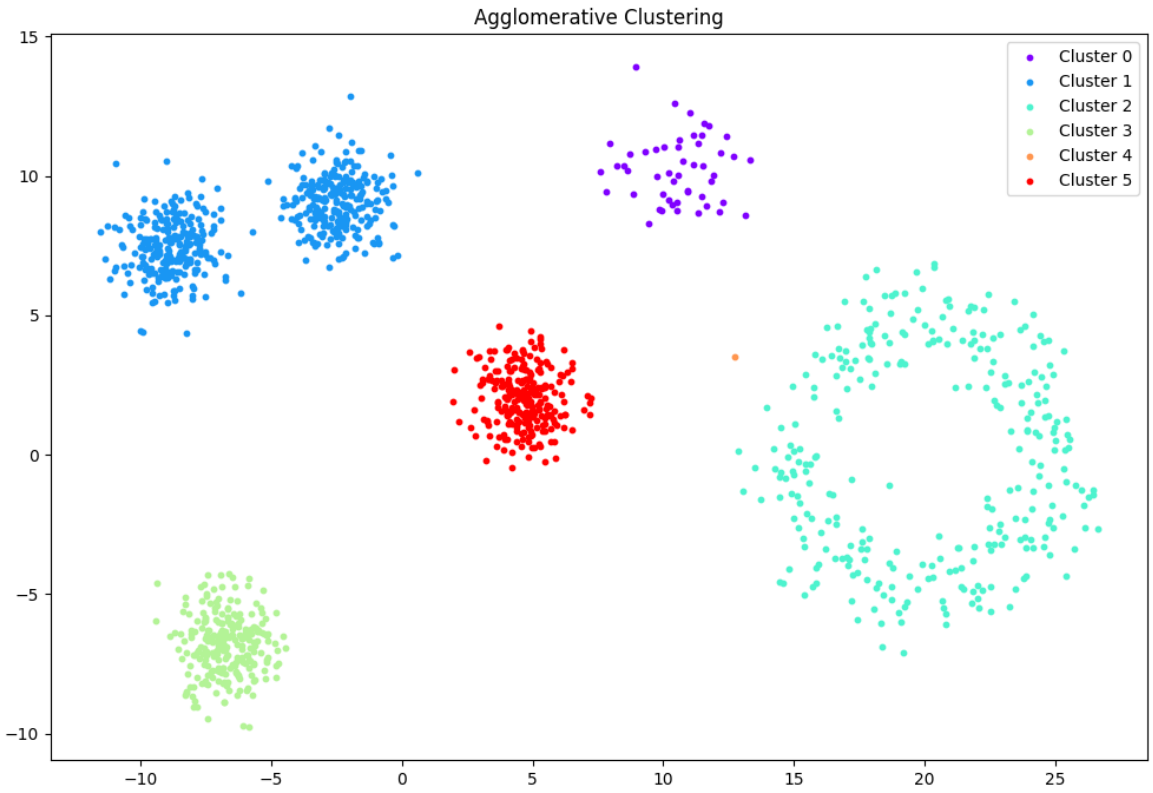
Silhouette score = 0.6478605803923654



Experiment 12:

hierarchical_cluster = AgglomerativeClustering(n_clusters=6,linkage='single')

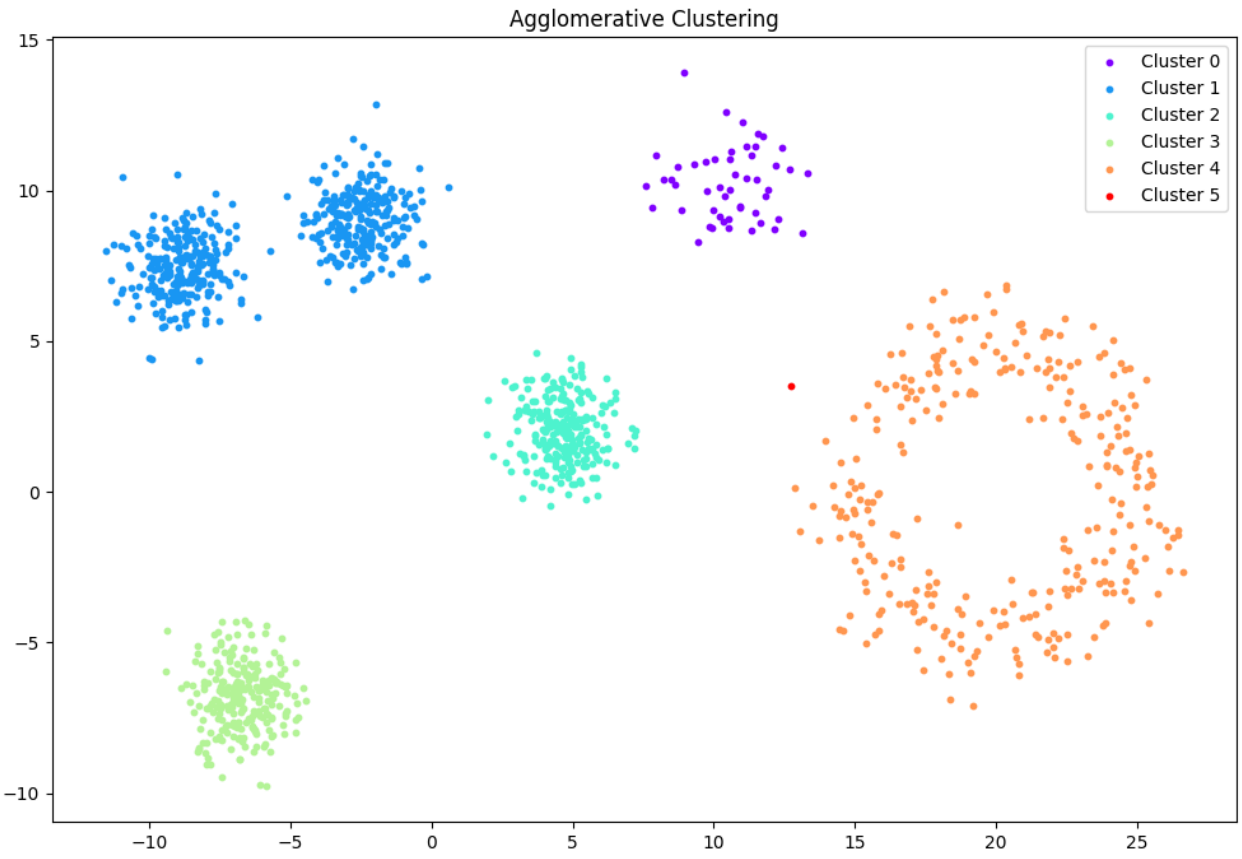
Silhouette score = 0.613327782899459



Experiment 13:

hierarchical_cluster = AgglomerativeClustering(n_clusters=6,metric='manhattan',linkage='single')

Silhouette score = 0.613327782899459

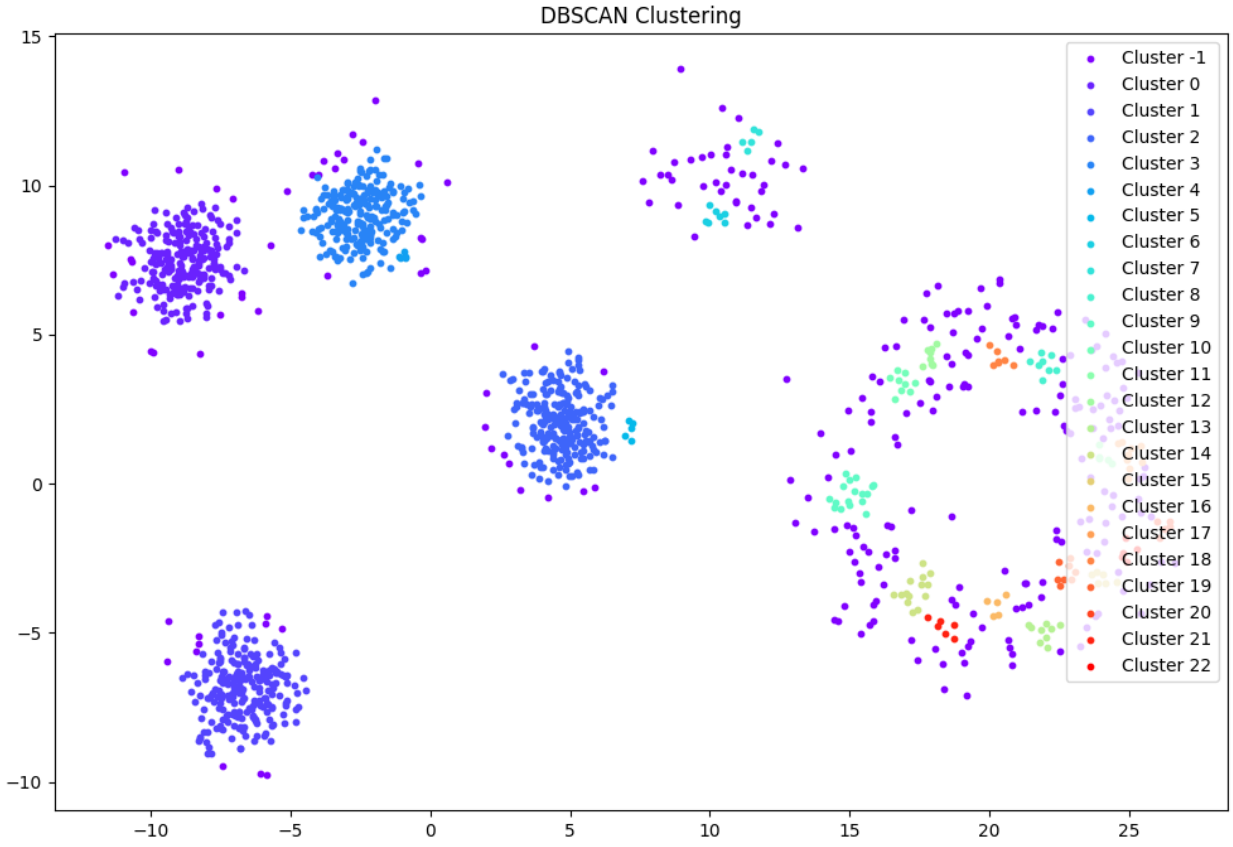


DBSCAN Clustering:-

Experiment 1:

DBSCAN_Cluster = DBSCAN()

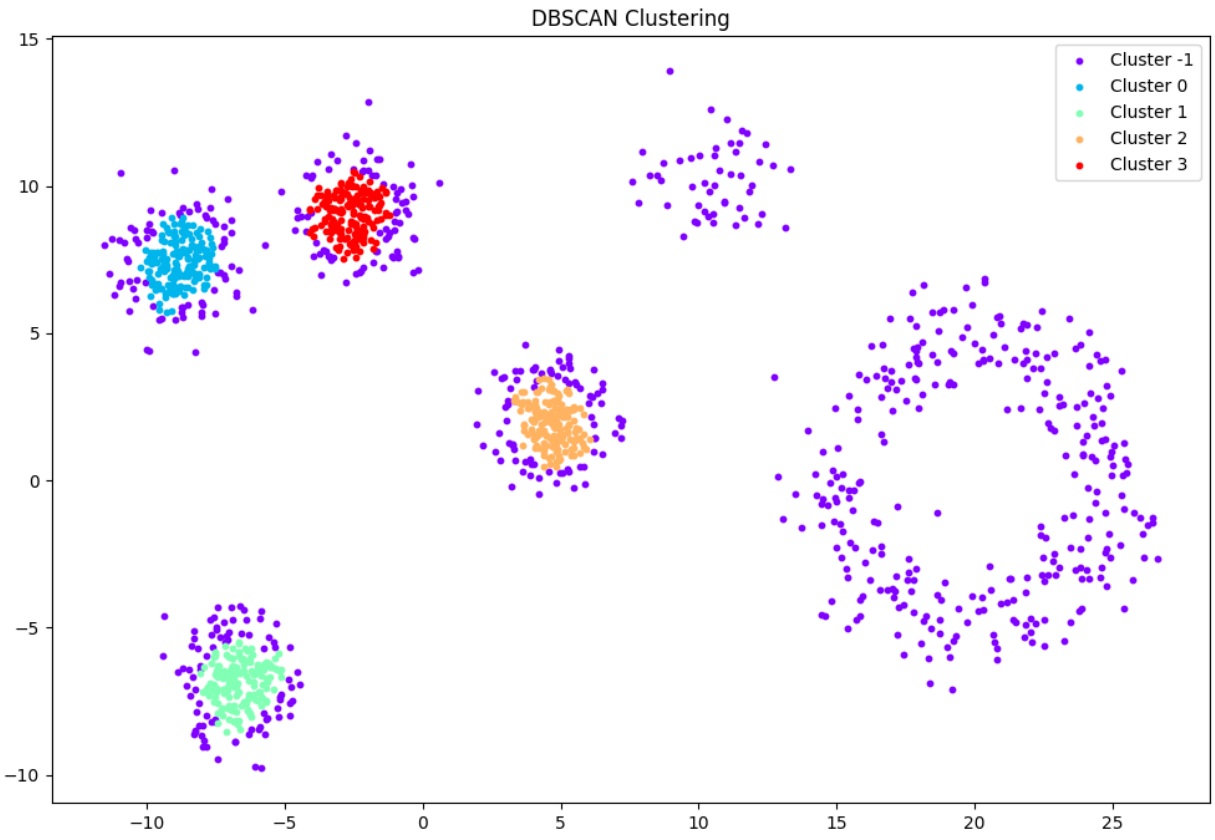
Silhouette score = 0.28865209433880534



Experiment 2:

DBSCAN_Cluster = DBSCAN(min_samples=19)

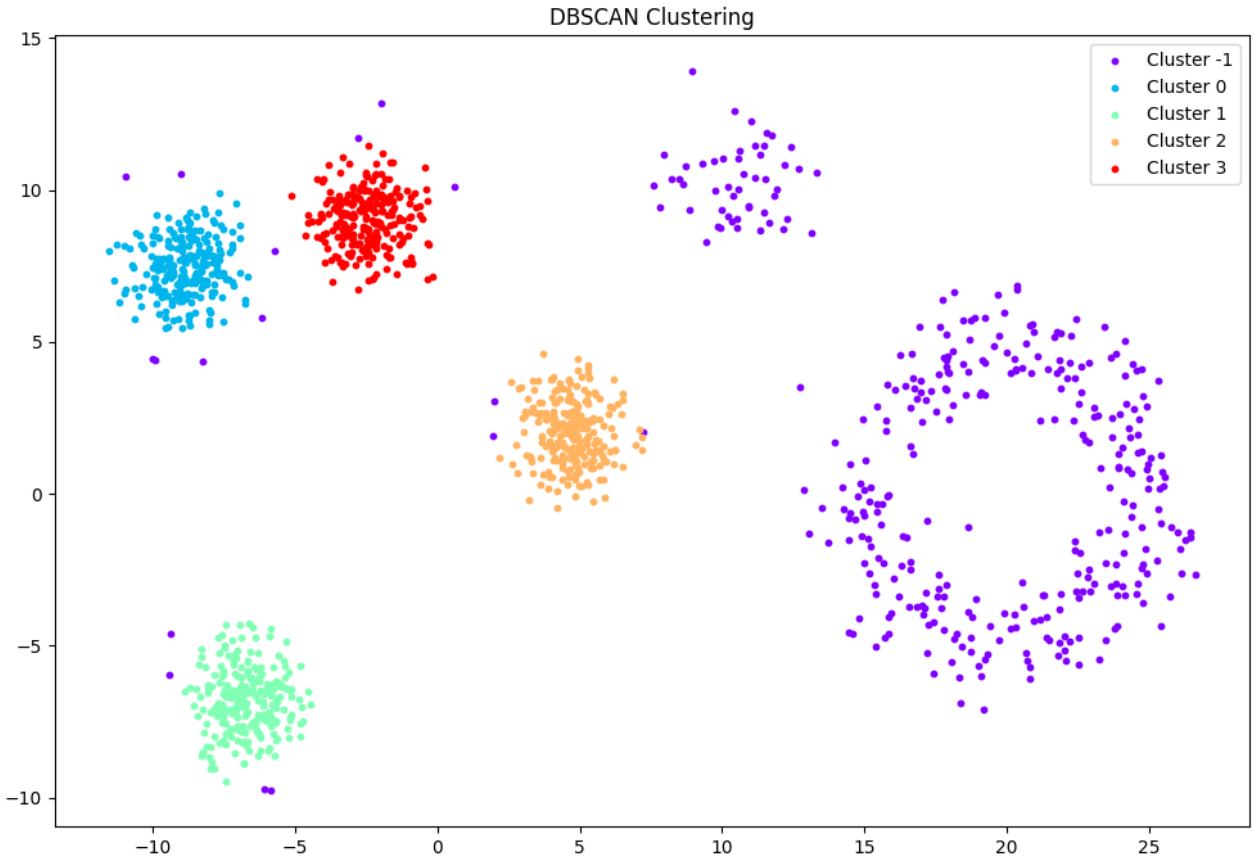
Silhouette score = 0.20738092930615099



Experiment 3:

DBSCAN_Cluster = DBSCAN(eps=1,min_samples=19)

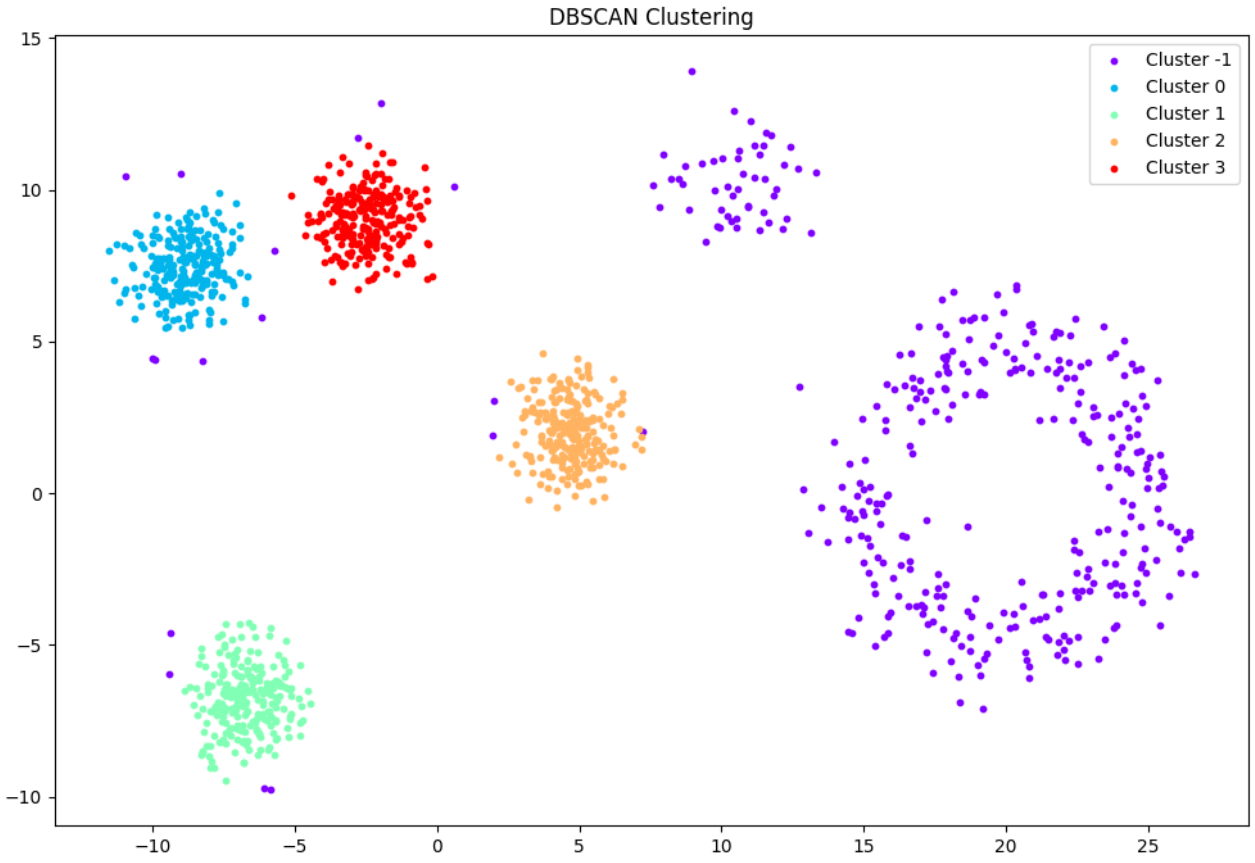
Silhouette score = 0.6612622555185036



Experiment 4:

DBSCAN_Cluster = DBSCAN(eps=1,min_samples=19,algorithm='ball_tree')

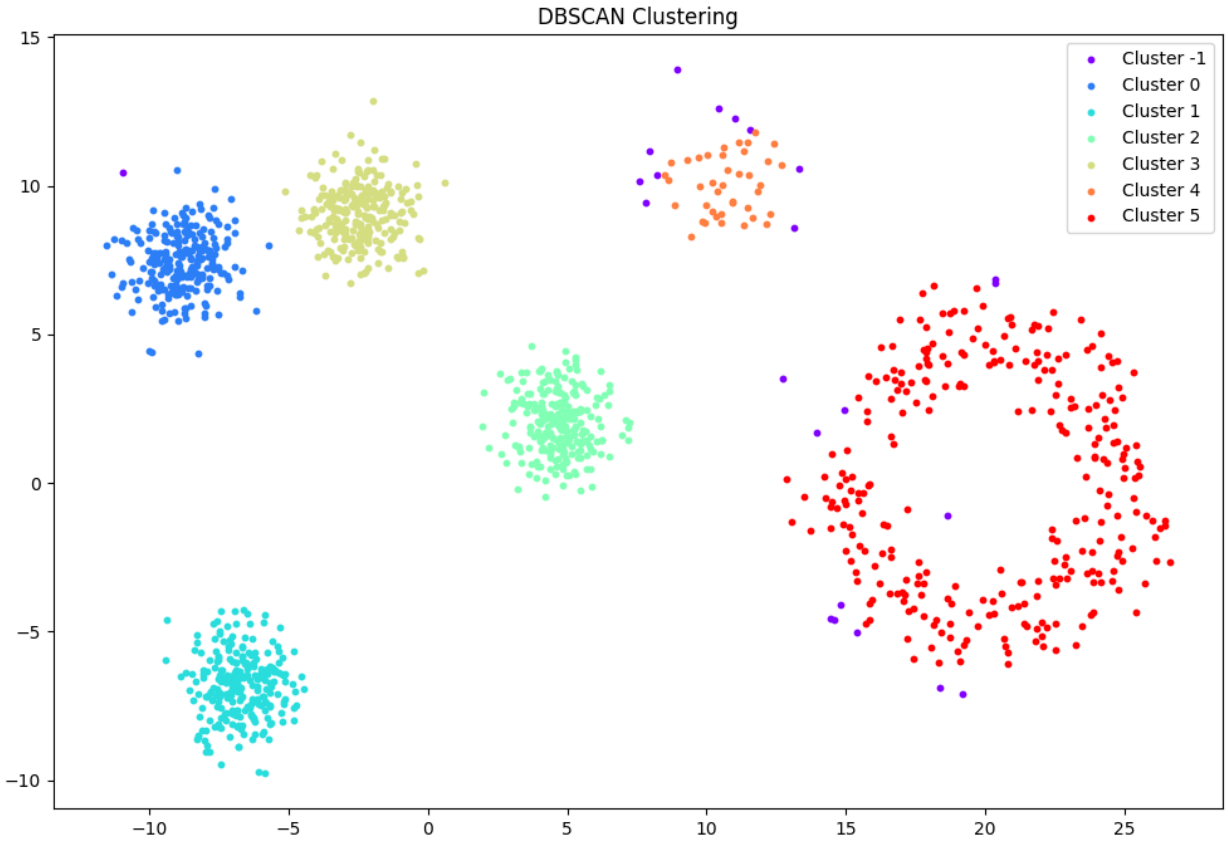
Silhouette score = 0.6612622555185036



Experiment 5:

DBSCAN_Cluster = DBSCAN(eps=1.5,min_samples=19,algorithm='ball_tree')

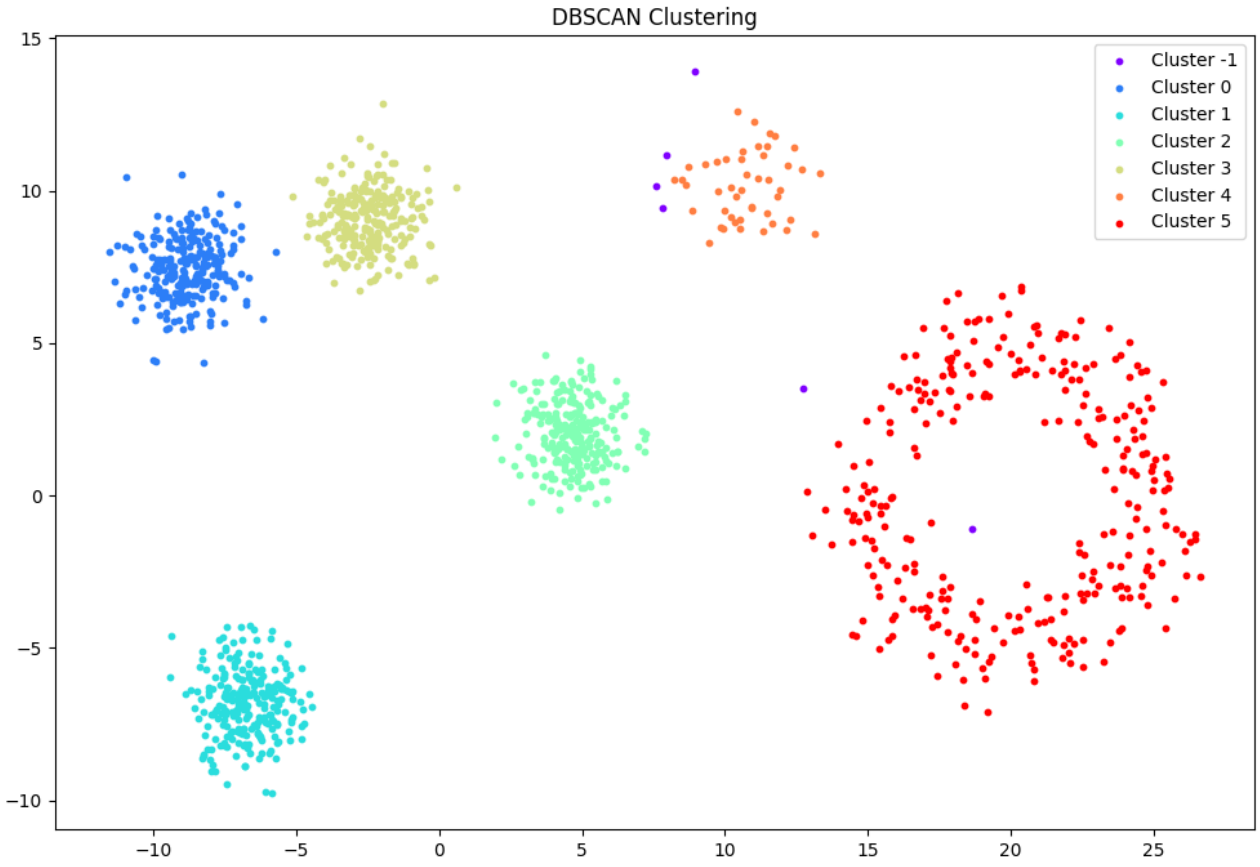
Silhouette score = 0.6958534974896633



Experiment 6:

DBSCAN_Cluster = DBSCAN(eps=1.7,min_samples=19,algorithm='ball_tree')

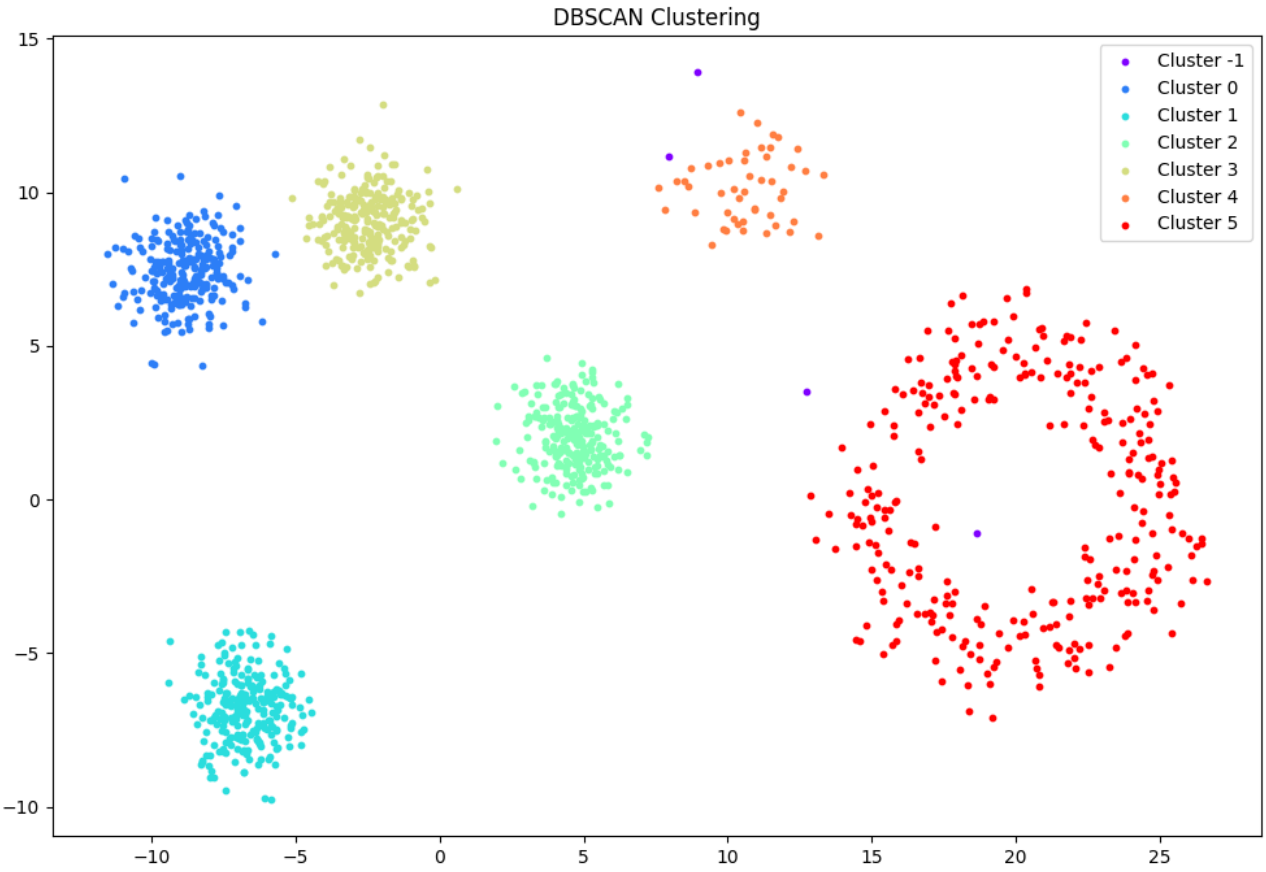
Silhouette score = 0.7125671527937365



Experiment 7:

DBSCAN_Cluster = DBSCAN(eps=1.8,min_samples=19,algorithm='ball_tree')

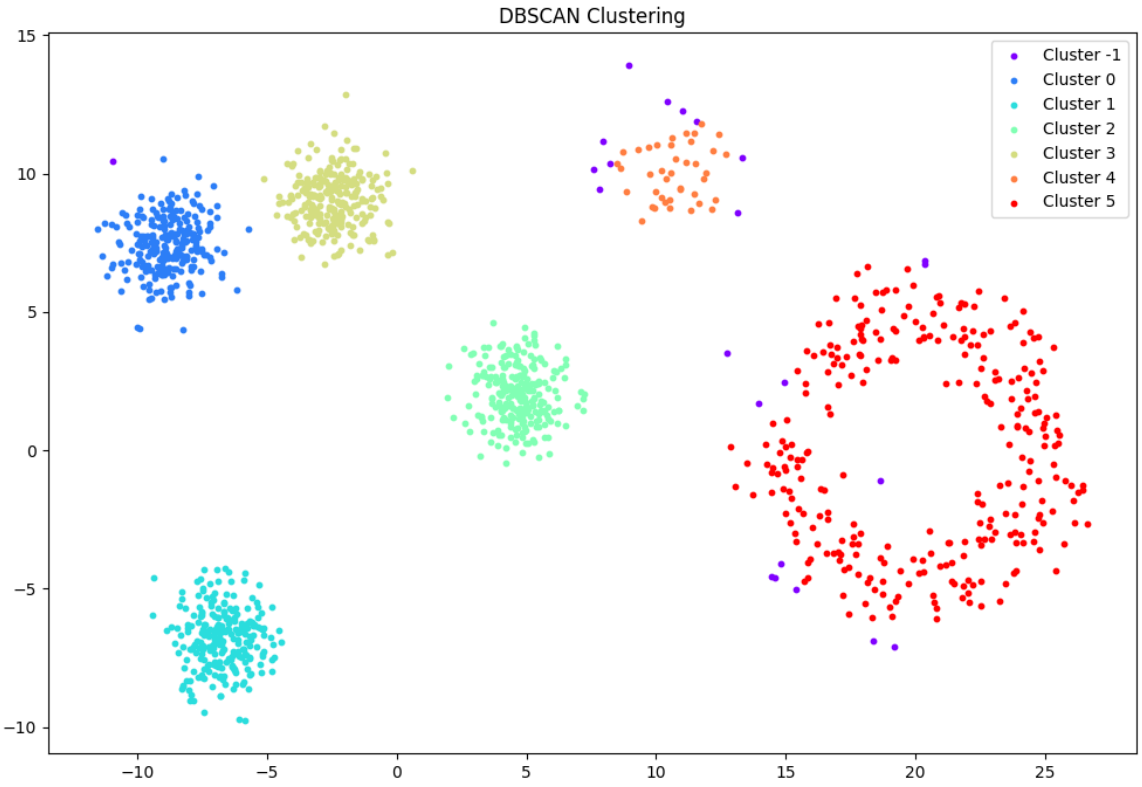
Silhouette score = 0.7067973764680522



Experiment 8:

DBSCAN_Cluster = DBSCAN(eps=1.5,min_samples=19,algorithm='brute')

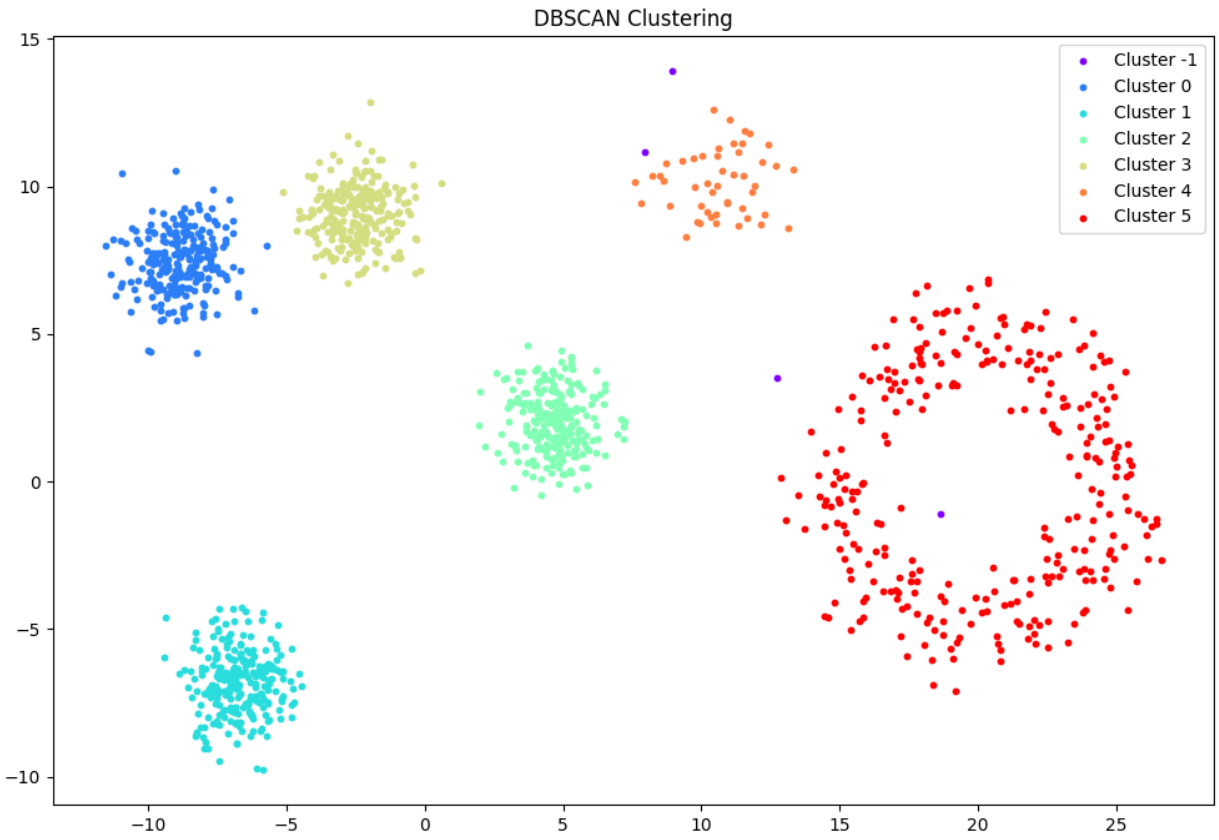
Silhouette score = 0.6958534974896633



Experiment 9:

DBSCAN_Cluster = DBSCAN(eps=1.8,min_samples=19,algorithm='brute')

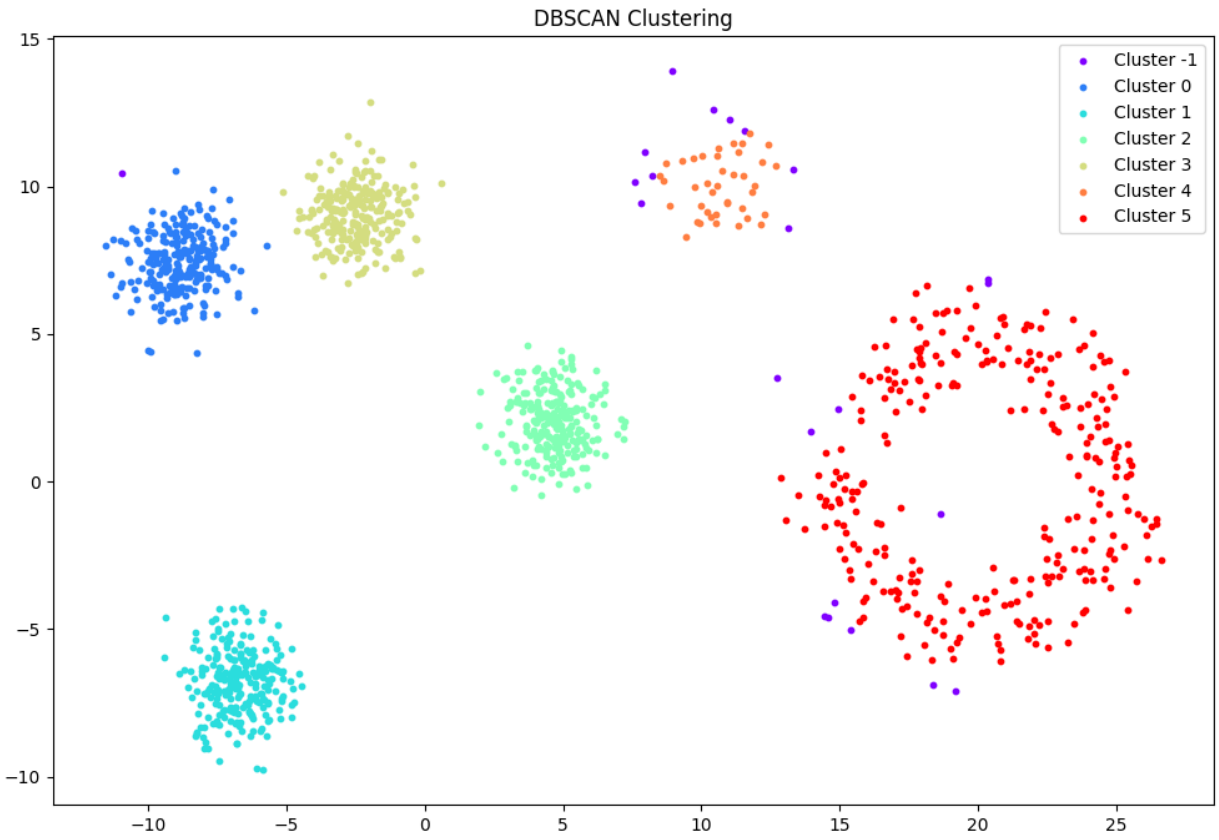
Silhouette score = 0.7067973764680522



Experiment 10:

DBSCAN_Cluster = DBSCAN(eps=1.5,min_samples=19,algorithm='kd_tree')

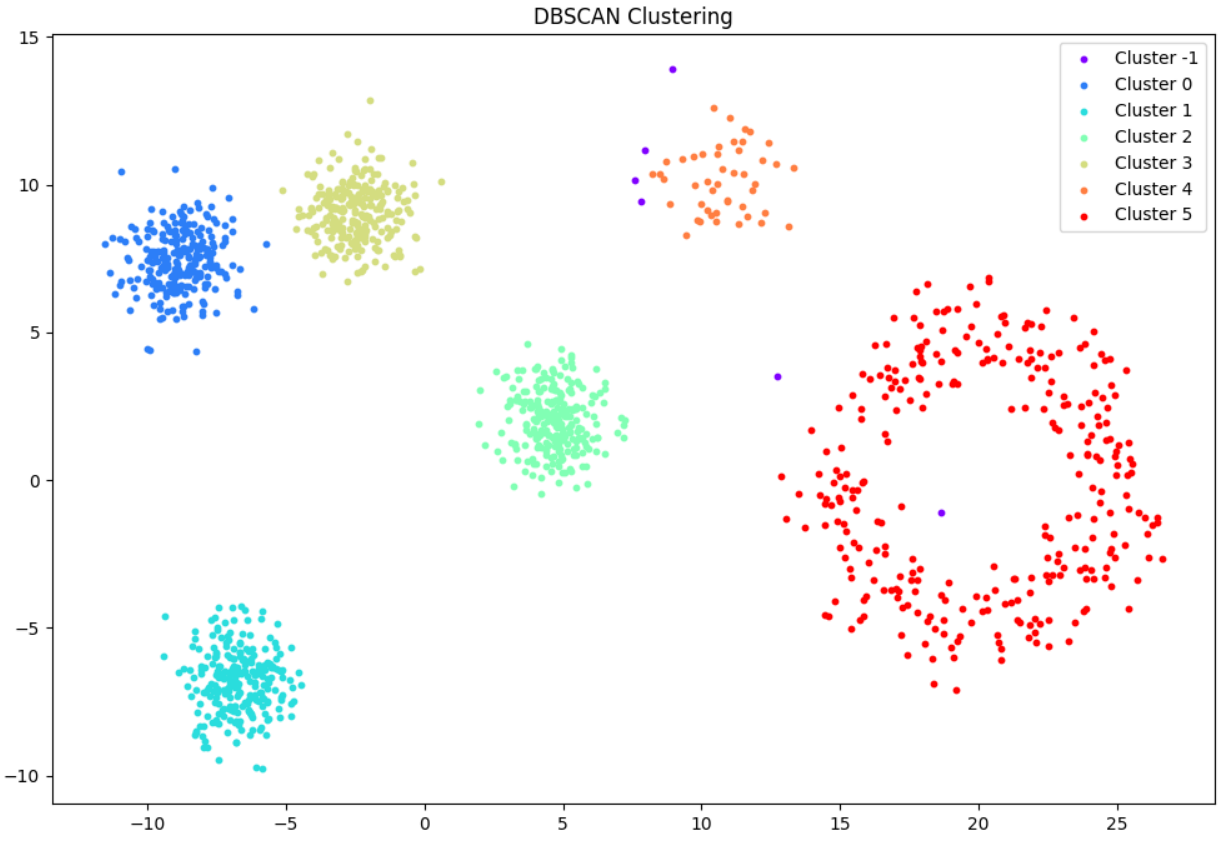
Silhouette score = 0.6958534974896633



Experiment 11:

DBSCAN_Cluster = DBSCAN(eps=1.7,min_samples=19,algorithm='kd_tree')

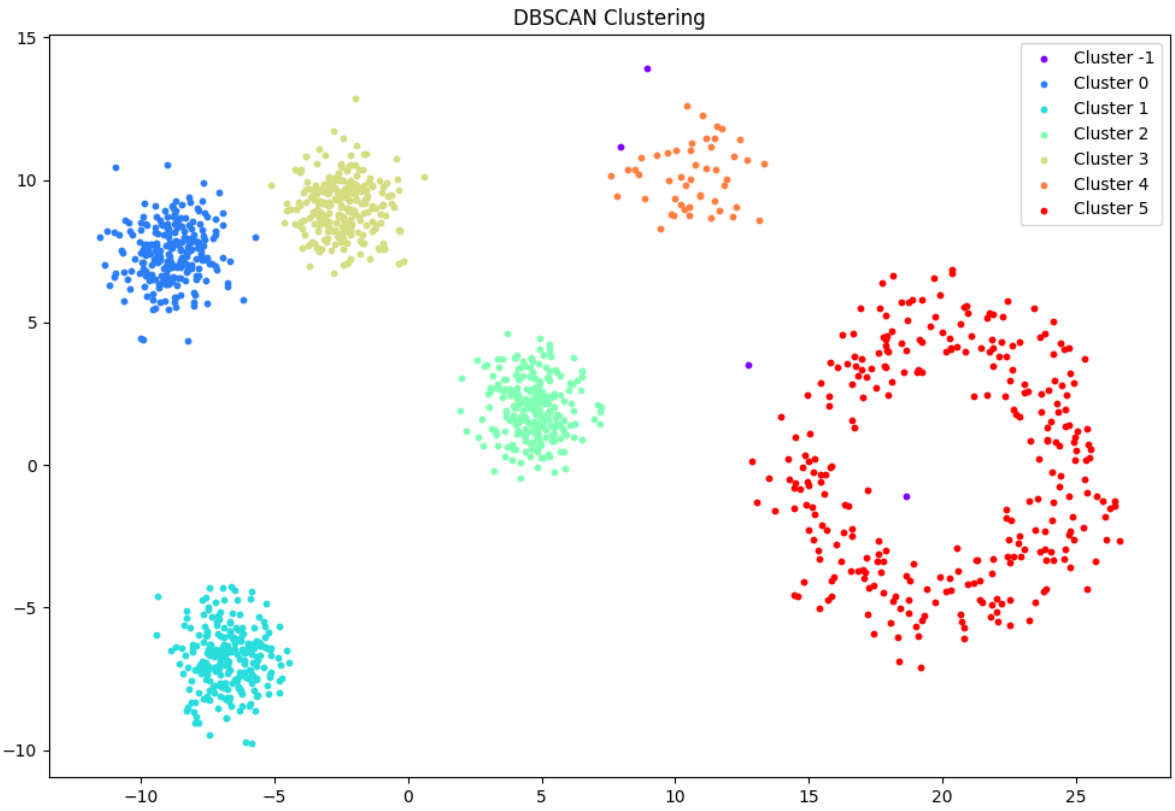
Silhouette score = 0.7125671527937365



Experiment 12:

DBSCAN_Cluster = DBSCAN(eps=1.8,min_samples=19,algorithm='kd_tree')

Silhouette score = 0.7067973764680522



Experiment 13:

DBSCAN_Cluster = DBSCAN(eps=1.7,min_samples=17,algorithm='kd_tree')

Silhouette score = 0.6924045615381438