#Code for training K-means model

optimal\_clusters = 4

# Train the KMeans model with the optimal number of clusters on the training data

kmeans = KMeans(n\_clusters=optimal\_clusters,init='k-means++', n\_init=10, random\_state=42)

kmeans.fit(X\_train)

# Assign cluster labels to the training data points

X\_train['Cluster'] = kmeans.labels\_

# Predict cluster labels for the testing data

X\_test['Cluster'] = kmeans.predict(X\_test)