**Trained K-Means Model**

* **Model File**: kmeans\_model.pkl (Saved using joblib.dump())
* **Training Code**:

*# Perform K-Means clustering using the best number of clusters*

kmeans\_final **=** KMeans(n\_clusters**=**best\_k, random\_state**=**42, n\_init**=**10)

labels **=** kmeans\_final**.**fit\_predict(X)

df["cluster\_label"] **=** labels

*# Save the DataFrame to a CSV File*

df**.**to\_csv("X\_train\_scaled\_clustered.csv", index**=False**)

df**.**head()

* **Dataset with Cluster Labels**:
  + The dataset with assigned cluster labels (X\_train\_scaled\_clustered.csv) is saved for further analysis.