BackWard Chaining

**AIM:**

To implement the **K-Means clustering algorithm** using the **scikit-learn** library on a synthetic dataset and visualize the resulting clusters along with their centroids.

Code :

from sklearn.cluster import KMeans

import matplotlib.pyplot as plt

from sklearn.datasets import make\_blobs

X, \_ = make\_blobs(n\_samples=300, centers=3, cluster\_std=0.60, random\_state=0)

kmeans = KMeans(n\_clusters=3)

kmeans.fit(X)

y\_kmeans = kmeans.predict(X)

plt.scatter(X[:, 0], X[:, 1], c=y\_kmeans, s=50, cmap='viridis')

centers = kmeans.cluster\_centers\_

plt.scatter(centers[:, 0], centers[:, 1], c='red', s=200, alpha=0.75)

plt.show()

Result:

[[ 0.95399449 4.04010586]

[-1.53776923 2.92727831]

[ 1.9322851 0.90598207]]