K-Means clustering algorithm

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]]
```