EX.NO:10 **DATE:4/10/2024**

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IMPLEMENTATION OF CLUSTERING TECHNIQUES K – MEANS

AIM:

To implement a K - Means clustering technique using python language.

EXPLANATION:

• Import KMeans from sklearn.cluster

• Assign X and Y.

• Call the function KMeans().

• Perform scatter operation and display the output**.**

CODE:

```
import numpy as np

import matplotlib.pyplot as plt

from sklearn.cluster import KMeans

from sklearn.datasets import make_blobs


X, y_true = make_blobs(n_samples=300, centers=3, cluster_std=0.60,
random_state=0)

K = 3

kmeans = KMeans(n_clusters=K, random_state=0)

y_kmeans = kmeans.fit_predict(X)
```

```
plt.figure(figsize=(8, 6))

plt.scatter(X[:, 0], X[:, 1], c=y_kmeans, s=30, cmap='viridis',
label='Clusters')

centers = kmeans.cluster_centers_

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

plt.title('K-means Clustering Results')

plt.xlabel('Feature 1')

plt.ylabel('Feature 2')

plt.legend()

plt.show()
```

OUTPUT: