**EX.NO:10**

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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

X = np.array([

    [1, 2], [1.5, 1.8], [5, 8], [8, 8], [1, 0.6], [9, 11], [8, 2], [10, 2], [9, 3]

])

kmeans = KMeans(n\_clusters=3)

kmeans.fit(X)

centroids = kmeans.cluster\_centers\_

labels = kmeans.labels\_

plt.scatter(X[:, 0], X[:, 1], c=labels, cmap='viridis', marker='o')

plt.scatter(centroids[:, 0], centroids[:, 1], c='red', s=200, marker='x', label='Centroids')

plt.title('K-Means Clustering')

plt.xlabel('Feature 1')

plt.ylabel('Feature 2')

plt.legend()

plt.show()

**OUTPUT:  
**