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

**Reg.no:220701047**

**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')

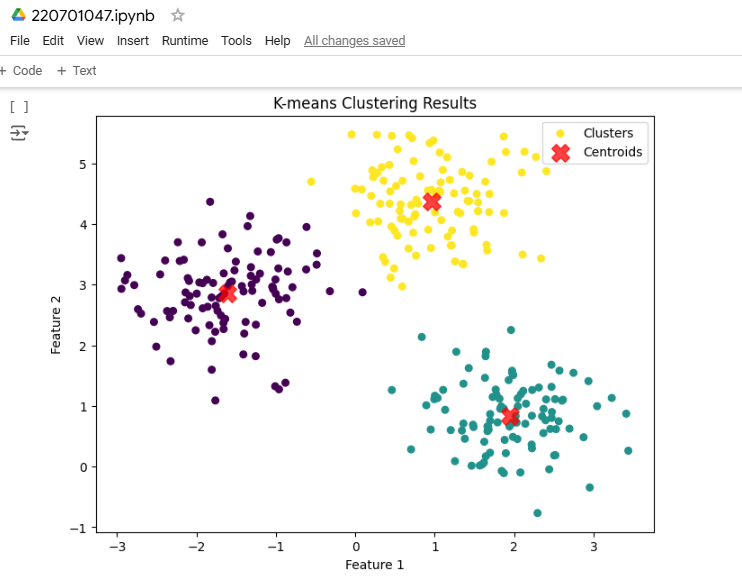
plt.title('K-means Clustering Results')

plt.xlabel('Feature 1')

plt.ylabel('Feature 2')

plt.legend()

plt.show()

**OUTPUT:  
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