## **EX NO: 14**

# VIMPLEMENTATION OF CLUSTERING TECHNIQUES K - MEANS

## AIM:

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

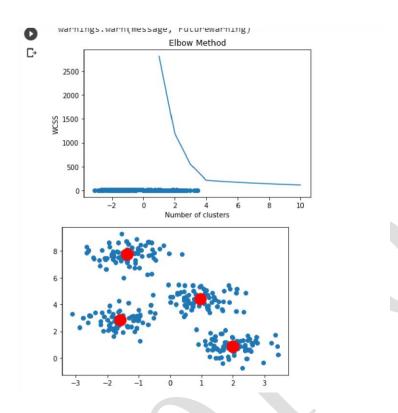
### **EXPLANATION:**

- Import KMeans from sklearn.cluster Assign X and Y.
- Call the function KMeans().
- Perform scatter operation and display the output.

#### **SOURCE CODE:**

```
import numpy as np import
pandas as pd
from matplotlib import pyplot as plt
from sklearn.datasets._samples_generator import make_blobs
from sklearn.cluster import KMeans
X, y = make_blobs(n_samples=300, centers=4, cluster_std=0.60, random_state=0) plt.scatter(X[:,0],
X[:,1])
wcss = [] for i in
range(1, 11):
  kmeans = KMeans(n_clusters=i, init='k-means++', max_iter=300, n_init=10, random_state=0)
                wcss.append(kmeans.inertia_) plt.plot(range(1, 11), wcss) plt.title('Elbow
kmeans.fit(X)
Method') plt.xlabel('Number of clusters') plt.ylabel('WCSS') plt.show()
kmeans = KMeans(n clusters=4, init='k-means++', max iter=300, n init=10, random state=0)
pred_y = kmeans.fit_predict(X) plt.scatter(X[:,0], X[:,1])
plt.scatter(kmeans.cluster_centers_[:, 0], kmeans.cluster_centers_[:, 1], s=300, c='red') plt.show()
```

#### **OUTPUT:**



**RESULT:** Thus the above python code is executed successfully and output is verified.