Exp No 13

Date

# K-Means

## AIM

To implement a k-means clustering technique using python Language

## Code

```
import numpy as np
import panda as pd
from matplotlib import pyplot as plt
from sklearn.dataset._samples_generator import
from sklearn.cluster import kMeans
X, y = make_blobs (n_sample = 300, center = 4,
                   cluster_std = 0.60, random = 0)
plt.scatter (x[:, 0], x[:, 1])
wcss[]
for i in range (1, 11):
    kmeans = KMeans (n_cluster = 1, init = 'k-mean++'
                     max_iter = 300, n_iter = 10, random = 0)
    kmeans.fit(x)
    wcss.append (kmeans.inertia_)
plt.plot(range (1, 11), wcss)
plt.title ('Elbow method')
plt.xlabel ('Cluster')
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], s=300,
                                    c='red')
plt.show()
```

Result

Thus kmeans clustering technique using Python language is successfully executed & output verified.

Completed