

Expt No: 14 Implementation of Clustering
Date: Techniques of K-Means.

Aim:

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

Explanation:

Import kmeans from sklearn.cluster
design x & y.
Call the function kmeans()

Source Code:

```
import numpy as np.  
import pandas as pd  
import matplotlib.pyplot as plt  
from sklearn.datasets import samples_generator  
import sklearn.cluster
```

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])
```

```
kmeans = kmeans
```

for i in range(1, 11)

kmeans = kmeans (n_clusters = 1, init =
'k, mini++', n_init = 30,
n_init = 100, random_state = 0)

kmeans.fit(x)

hcs.append(kmeans.inertia_)

plt.plot(range(1, 11), hcs)

plt.title('Elbow method')

plt.xlabel('Number of clusters')

plt.ylabel('hcs')

plt.show()

kmeans = kmeans (n_clusters = 4, init = 'k-
mini++'

n_init = 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()

