Ex No: 14 Implementation of Clustering Techniques K-means

Aim:

To implement a K-means clustering technique using Python language.

Explanation:

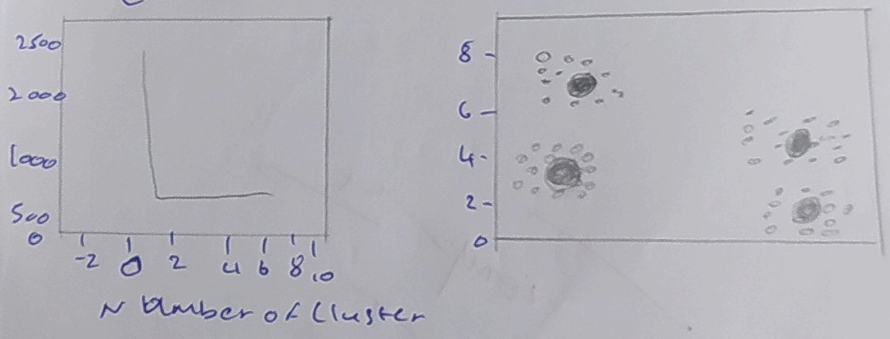
* import Kmeans from Sklearn.cluster
* Assign x and y
* call the function Kmeans()
* Perform scatter operation and display the output:

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_cluster=i, init='k-
means', max_iter=300, n_init=10, random
_state=0)
kmeans.fit(x)
wcss.append(kmeans.inertia)
plt.plot(range(1,11), wcss)
```

```
plt.title ('Elbow 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,
                                  ('r-cu')
plt.show()
```

Output:



Result:

The Program is successfully executed and verified.