EX NO : 12

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.

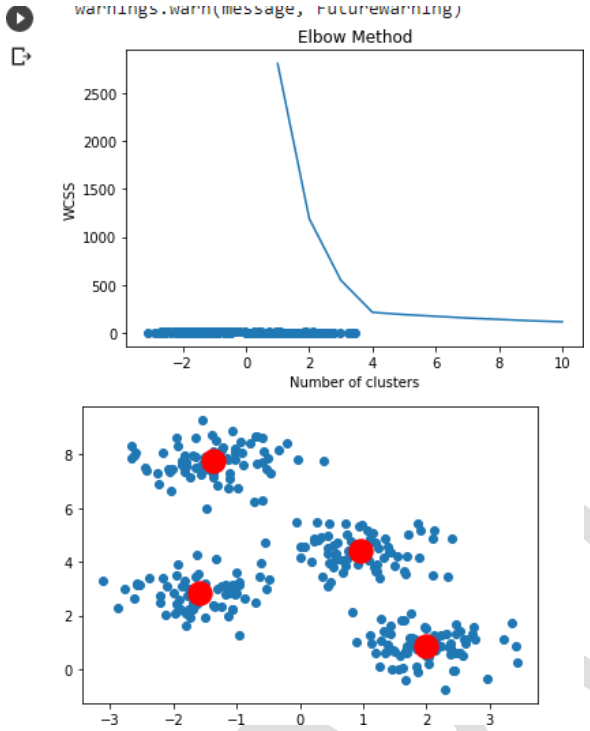
SOURCE CODE:

```
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)
    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, c='red')
plt.show()
```

OUTPUT :



RESULT:

Thus the python code is implemented successfully and the output is verified.