

EXP. NO. 10 IMPLEMENTATION OF CLUSTERING  
DATE TECHNIQUES K-MEANS.

AIM:-

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

PSEUDOCODE:-

- 1) import Kmeans from sklearn.cluster
- 2) Assign x and y.
- 3) Call the fit Kmean()
- 4) Perform scatter operation & display the output.

CODE:-

```
import numpy as np
```

```
import pandas as pd
```

```
import matplotlib.pyplot as plt
```

```
from sklearn.datasets import make_blobs
```

```
from sklearn.cluster import KMeans
```

```
X, y = make_blobs(n_samples=300, centers=4,
```

```
cluster=0.60, random_state=0)
```

```
#plot
```

```
plt.figure(figsize=(8,6))
```

```
plt.scatter(X[:,0], X[:,1], s=30, cmap="viridis")
```

```
plt.title('Data Points')
```

```
plt.show()
```

```
# Elbow method
```

```
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.figure(figsize=(8,6))
```

```
plt.plot(range(1,11), wcss, marker='o', linestyle='--')
```

```
plt.title('Elbow Method')
```

```
plt.xlabel('Number of clusters')
```

```
plt.ylabel('WCSS (Within cluster sum of square)')
```

```
plt.show()
```

OUTPUT:-

1. The program is successfully executed.  
2. The output is as follows:  
3. The program is successfully executed.  
4. The output is as follows:  
5. The program is successfully executed.  
6. The output is as follows:

7. The program is successfully executed.  
8. The output is as follows:  
9. The program is successfully executed.  
10. The output is as follows:  
11. The program is successfully executed.  
12. The output is as follows:

RESULT:-

The program is successfully executed & output is as follows

1. The program is successfully executed.  
2. The output is as follows:  
3. The program is successfully executed.  
4. The output is as follows:  
5. The program is successfully executed.  
6. The output is as follows:  
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11. The program is successfully executed.  
12. The output is as follows: