Experiment No- 3.1

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Branch: CSE **Section/Group: 616-B**
Semester: 5 **Date of Performance: 09-11-22**
Subject Name: Machine Learning **Subject Code: 20CSP -317**

1. **Aim/Overview of the practical:** Implementing K Means algorithm on any dataset and analyse the accuracy.

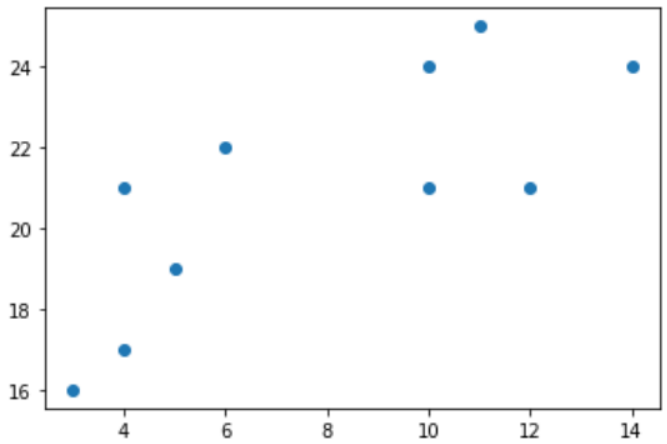
2. **Task to be done/ Which logistics used:** Analysing accuracy by implementing the K Means algorithm on any dataset.

3. **Steps of experiment/Code:**

    1. **Importing libraries such as matplotlib and create some data by storing it in variable x and y.**

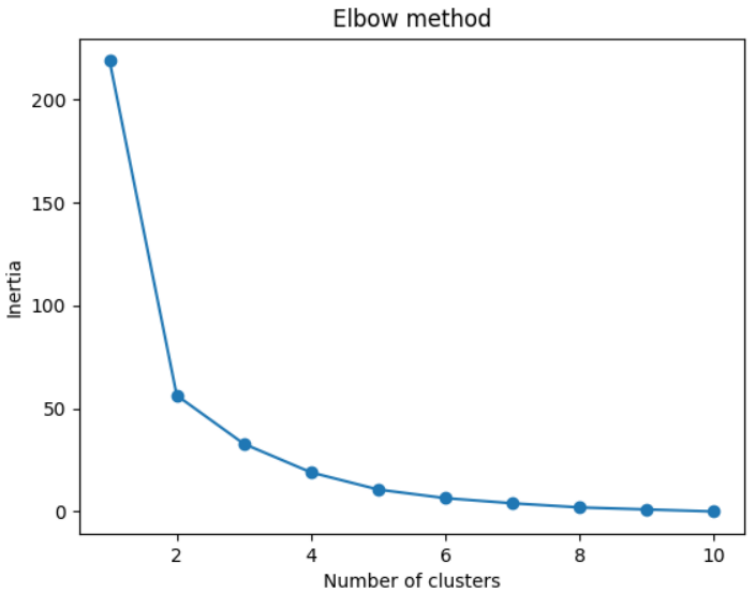
```
import matplotlib.pyplot as plt
```

```
x = [4,5,10,4,3,11,14,6,10,12]
y = [21,19,24,17,16,25,24,22,21,21]
plt.scatter(x,y)
plt.show()
```



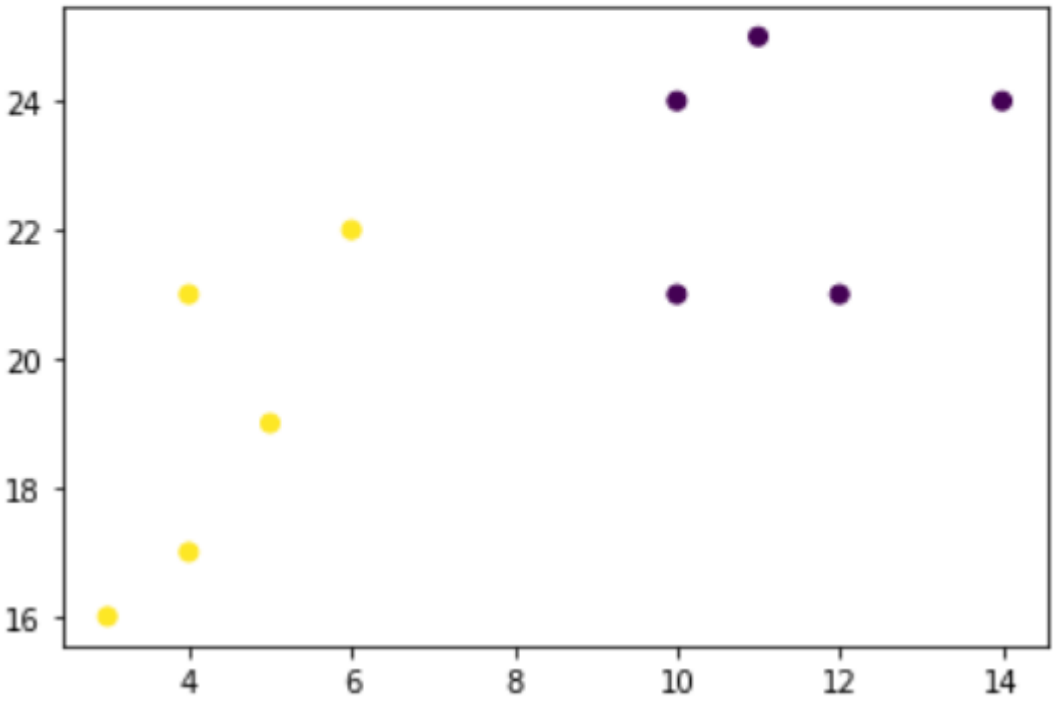
2. Implementing K Means algorithm:

```
from sklearn.cluster import KMeans

data = list(zip(x, y))
inertias = []

for i in range(1,11):
    kmeans = KMeans(n_clusters=i)
    kmeans.fit(data)
    inertias.append(kmeans.inertia_)

plt.plot(range(1,11), inertias, marker='o')
plt.title('Elbow method')
plt.xlabel('Number of clusters')
plt.ylabel('Inertia')
plt.show()
```



3. Scatter plot after implementing K Means:

```
kmeans = KMeans(n_clusters= 2)
kmeans.fit(data)
plt.scatter(x, y, c= kmeans.labels_)
plt.show()
```



Learning Outcomes (What I have learnt):

1. I have learnt about implementing K Means algorithm on any dataset.

2. I have learnt about assigning few features to one variable and rest to other.

3. I have learnt about various libraries which are supported by python such as sklearn, matplotlib.

4. I have learnt about the various functions provided by various libraries.

5. I have understood the experiment very well.

Evaluation Grid:

	Parameters	Marks Obtained	Maximum Marks
1.	Student Performance (Conduct of experiment) objectives/Outcomes.		12
2.	Viva Voce		10
3.	Submission of Work Sheet (Record)		8
	Total		30