

Experiment – 8

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1. Aim/Overview of the practical:

Implement K-means clustering algorithm (cluster some sample data set into disjoint clusters using K-means).

2. Task to be done/ Which logistics used:

Implement K-means clustering algorithm (cluster some sample data set into disjoint clusters using K-means).

3. Steps for experiment/practical/Code:

```
**Implements K-Mean Clustering on Any Dataset.**
"""

import matplotlib.pyplot as plt
from sklearn.cluster import KMeans

"""# **This is the Specific Example for the K-Mean Clustering**"""

x = [4, 5, 10, 4, 3, 11, 14, 6, 10, 12]
y = [21, 19, 24, 17, 16, 25, 24, 22, 21, 21]

data = list(zip(x, y))
print(data)

plt.scatter(x, y)
plt.show()

inertias = []

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

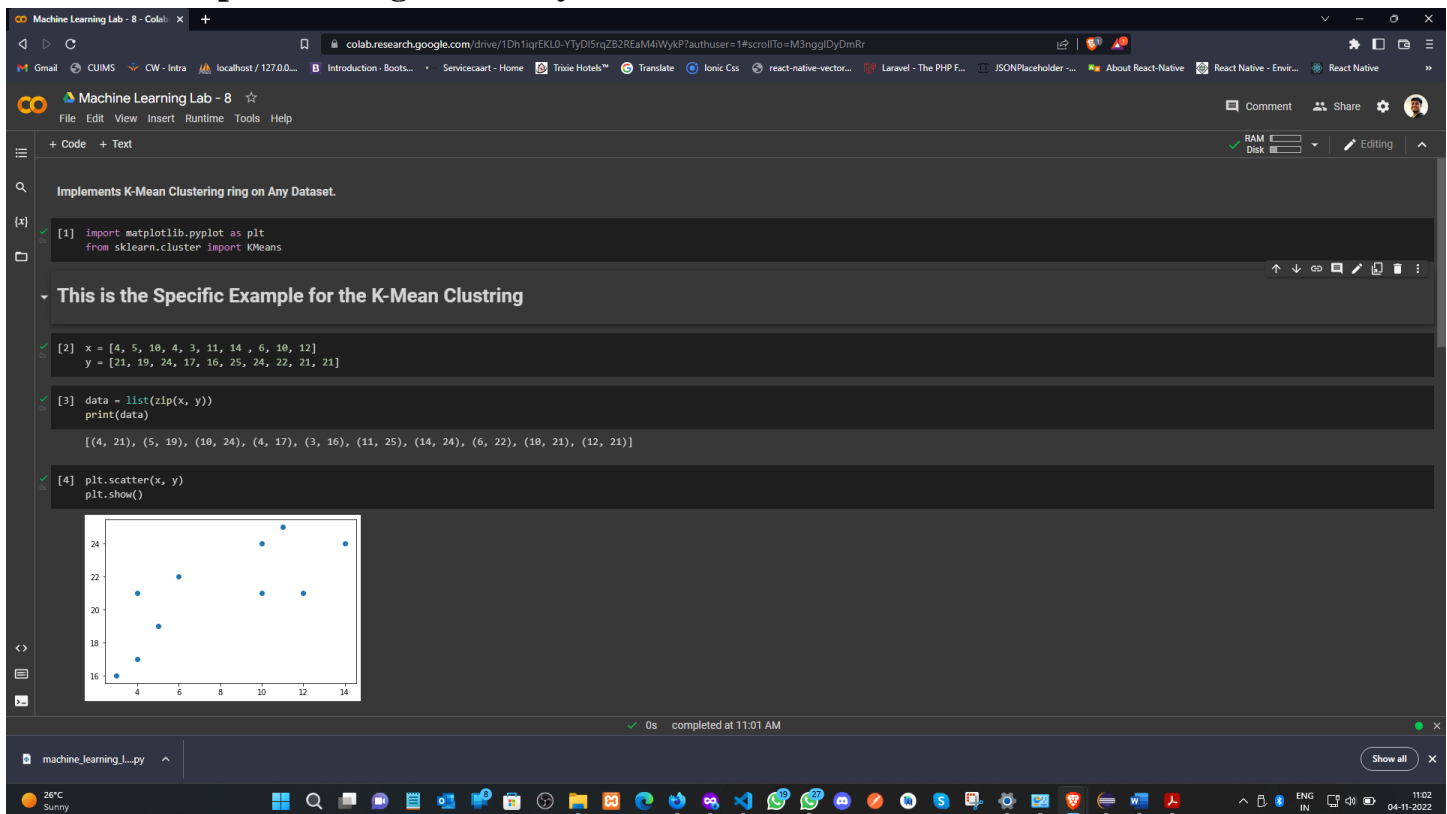
plt.plot(range(1,11), inertias, marker='o')
plt.title('Elbow method')
plt.xlabel('Number of clusters')
```

```
plt.ylabel('Inertia')
plt.show()

kmeans = KMeans(n_clusters=2)
kmeans.fit(data)

plt.scatter(x, y, c=kmeans.labels_)
plt.show()
```

4. Result/Output/Writing Summary:



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colab.research.google.com/drive/1Dh1IqrEKL0-YTyD5rqZ82REaM4WYkP?authuser=1#scrollTo=M3nggIDyDmRr

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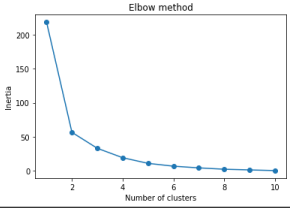
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```
[5] inertias = []


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()
```



```
kmeans = KMeans(n_clusters=2)
kmeans.fit(data)

plt.scatter(x, y, c=kmeans.labels_)
plt.show()
```



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machine_learning_1.py

25°C Sunny

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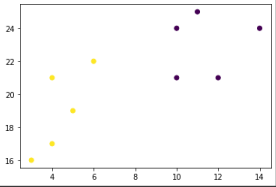
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```
[6] kmeans = KMeans(n_clusters=2)
kmeans.fit(data)

plt.scatter(x, y, c=kmeans.labels_)
plt.show()
```



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machine_learning_1.py

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Learning outcomes (What I have learnt):

1. Understood the concept of K-Mean.
2. Learnt how to zip the two-array data in a single list.
3. Learnt the Inertia calculation.
4. Plot the graph for Inertia and Number of clusters.

Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.			
2.			
3.			