**Experiment: 2.3**

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**Branch:** CSE **Section/Group:** 21BCS-IOT-602B

**Semester:** 5th **Date:** 19/10/23

**Subject Name**: AIML Lab **Subject Code:** 21CSH-316

1. **AIM:** *Implement K-Nearest Neighbor on any data set.*
2. **Objective:**

* *To Learn about Meta-data and different clustering functions.*
* *To learn About Different KNN Techniques.*
* *To Learn about Cluster Model or algorithms.*

1. **Tools/Resource Used:**

*1. Python programming language.*

*2. Jupyter Notebook.*

1. **Algorithm:**

*1. Importing the modules*

*2. Creating Dataset*

*3. Visualize the Dataset*

*4. Splitting Data into Training and Testing Datasets*

*5. KNN Classifier Implementation*

*6. Predictions for the KNN Classifiers*

*7. Visualize Predictions.*

1. **Program Code:**

*import numpy as np*

*import pandas as pd*

*import matplotlib.pyplot as plt*

*from sklearn.datasets import make\_blobs*

*from sklearn.neighbors import KNeighborsClassifier*

*from sklearn.model\_selection import train\_test\_split*

*X, y = make\_blobs(n\_samples = 500, n\_features = 2, centers = 4,cluster\_std = 1.5, random\_state = 4)*

*X\_train, X\_test, y\_train, y\_test = train\_test\_split(X, y, random\_state = 0)*

*knn5 = KNeighborsClassifier(n\_neighbors = 5)*

*knn1 = KNeighborsClassifier(n\_neighbors=1)*

*knn5.fit(X\_train, y\_train)*

*knn1.fit(X\_train, y\_train)*

*y\_pred\_5 = knn5.predict(X\_test)*

*y\_pred\_1 = knn1.predict(X\_test)print("Mean of the array is", mean)*

*plt.figure(figsize = (15,5))*

*plt.subplot(1,2,1)*

*plt.scatter(X\_test[:,0], X\_test[:,1], c=y\_pred\_5, marker= '\*', s=100,edgecolors='black')*

*plt.title("Predicted values with k=5", fontsize=20)*

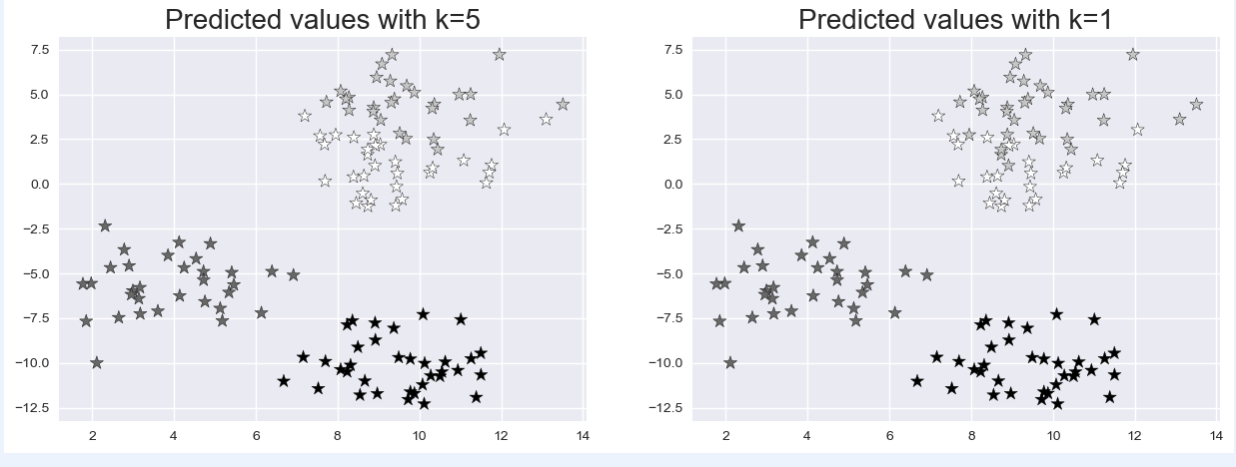
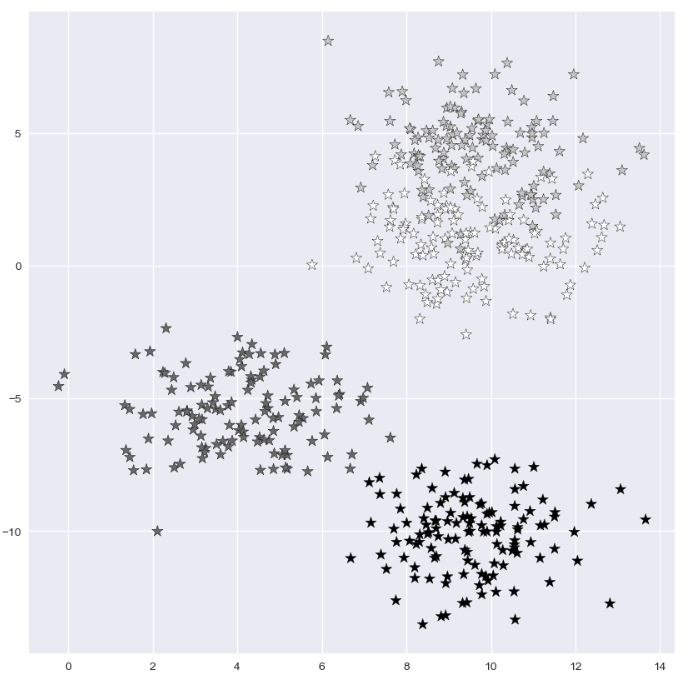
*plt.subplot(1,2,2)*

*plt.scatter(X\_test[:,0], X\_test[:,1], c=y\_pred\_1, marker= '\*', s=100,edgecolors='black')*

*plt.title("Predicted values with k=1", fontsize=20)*

*plt.show()*

1. **Output/Result:**

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1. **Learning Outcomes:**
2. *Implement to implement different python library.*
3. *Understand the concept of k-mean.*
4. *Learn machine learning algorithm.*