Experiment: 2.3

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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.*

3. Tools/Resource Used:
1. *Python programming language.*
2. *Jupyter Notebook.*

4. 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.*

5. 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()
```
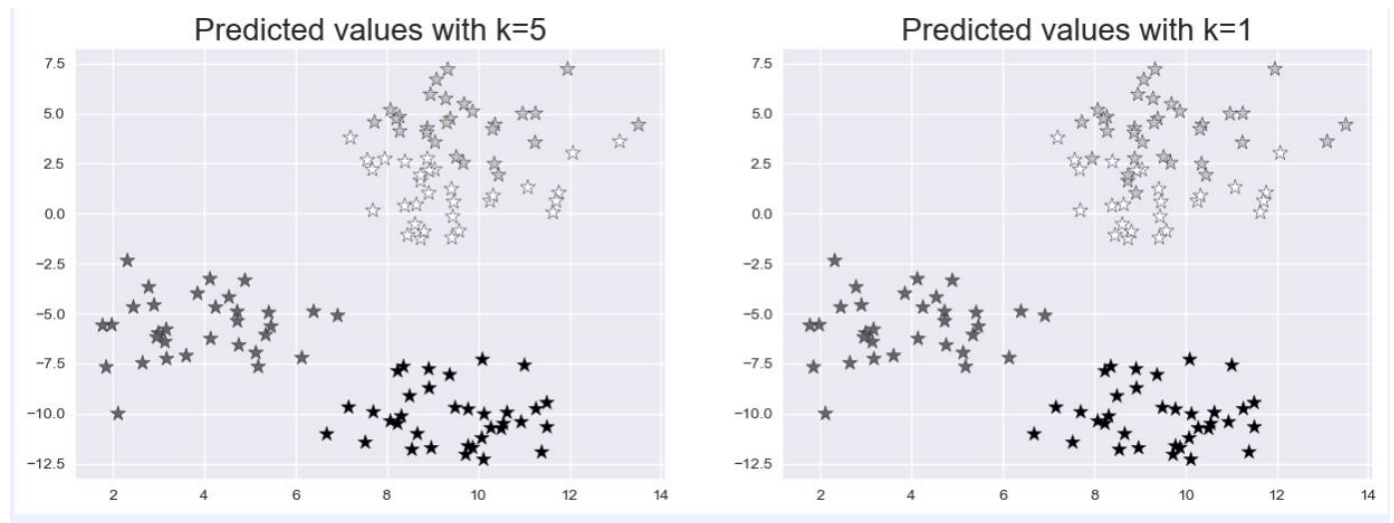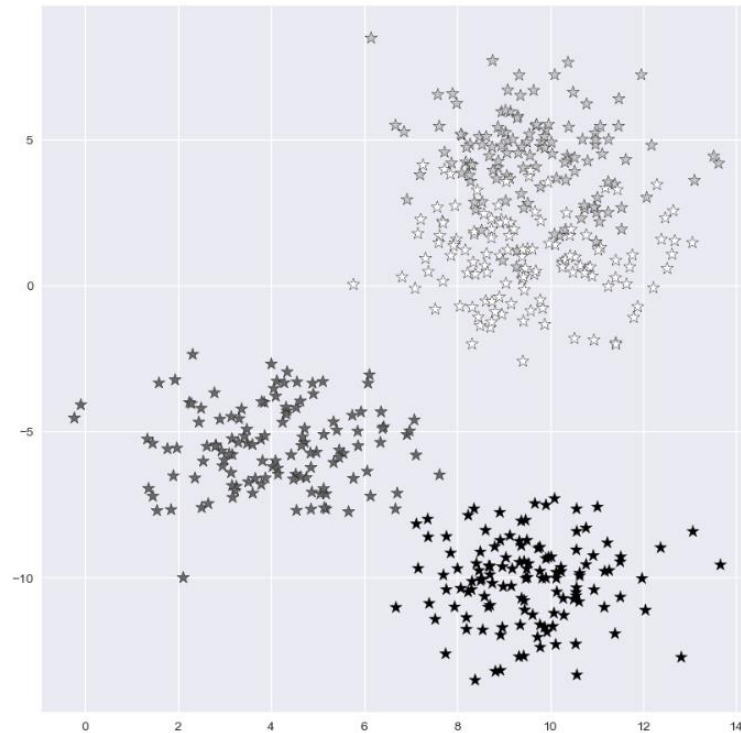
6. Output/Result:

Predicted values with k=5

Predicted values with k=1

7. Learning Outcomes:

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