

✓ import the library

```
1 import numpy as np
2 import pandas as pd
3
4 import matplotlib.pyplot as plt
5
6 from sklearn.datasets import make_blobs
7 from sklearn.neighbors import KNeighborsClassifier
8 from sklearn.model_selection import train_test_split
```

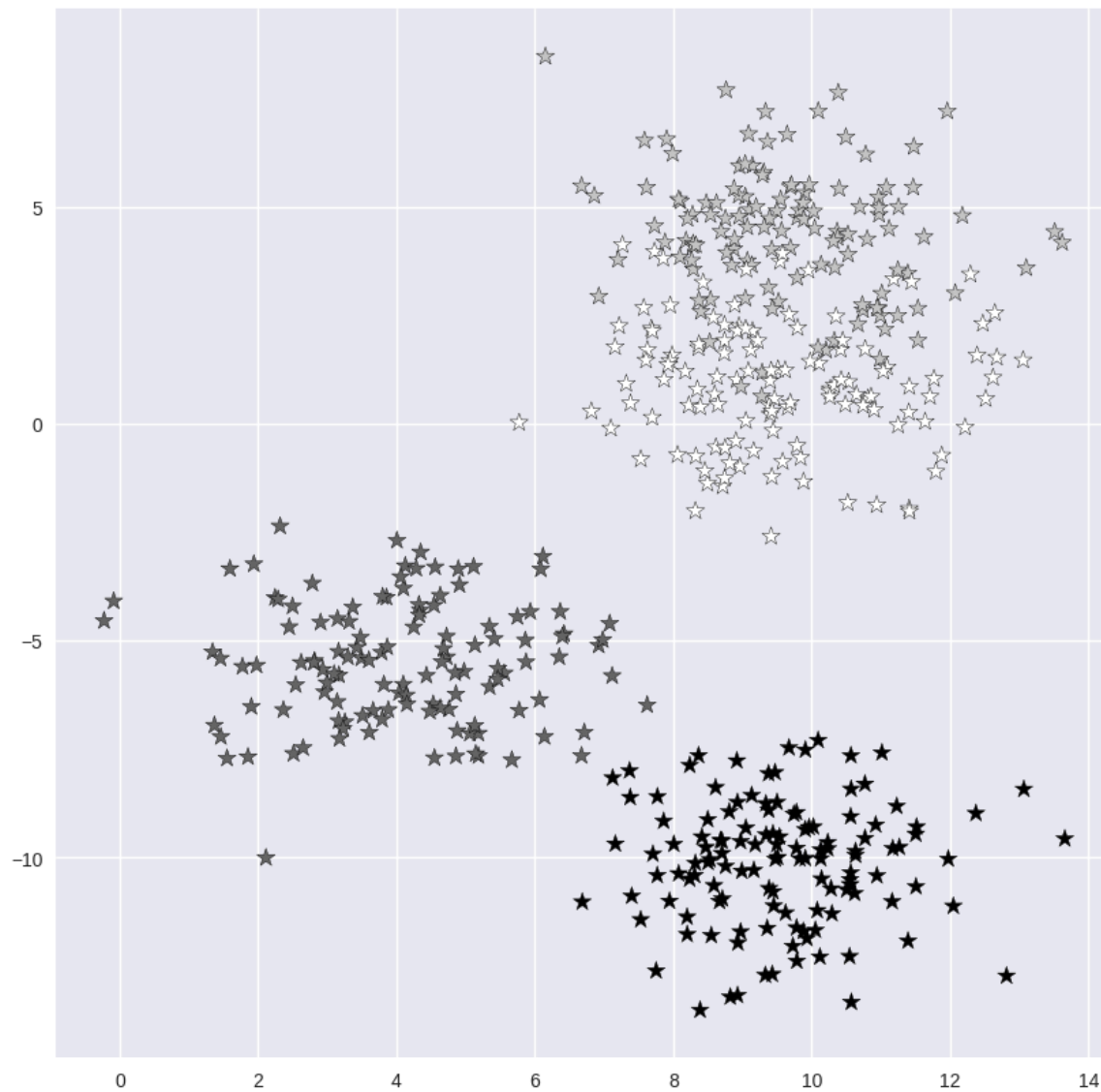
✓ Creating the dataset

```
1 X, y = make_blobs(n_samples = 500, n_features = 2, centers = 4, cluster_std = 1.5, random_state
1
```

✓ Visualise the dataset

```
1 plt.style.use('seaborn')
2 plt.figure(figsize = (10,10))
3 plt.scatter(X[:,0], X[:,1], c=y, marker= '*', s=100, edgecolors='black')
4 plt.show()
```

```
<ipython-input-33-7493aa86a659>:1: MatplotlibDeprecationWarning: The seaborn sty.  
plt.style.use('seaborn')
```



✓ Split the data

```
1 X_train, X_test, y_train, y_test = train_test_split(X, y, random_state = 0)
```

```

1 knn5 = KNeighborsClassifier(n_neighbors = 5)
2 knn1 = KNeighborsClassifier(n_neighbors=1)

```

✓ Predictions for the KNN classifier

```

1 knn5.fit(X_train, y_train)
2 knn1.fit(X_train, y_train)
3
4 y_pred_5 = knn5.predict(X_test)
5 y_pred_1 = knn1.predict(X_test)

```

✓ Predict Accuracy

```

1 from sklearn.metrics import accuracy_score
2 print("Accuracy with k=5", accuracy_score(y_test, y_pred_5)*100)
3 print("Accuracy with k=1", accuracy_score(y_test, y_pred_1)*100)

```

```

Accuracy with k=5 93.60000000000001
Accuracy with k=1 90.4

```

✓ Visualise Prediction

```

1 plt.figure(figsize = (15,5))
2 plt.subplot(1,2,1)
3 plt.scatter(X_test[:,0], X_test[:,1], c=y_pred_5, marker= '*', s=100,edgecolors='black')
4 plt.title("Predicted values with k=5", fontsize=20)
5
6 plt.subplot(1,2,2)
7 plt.scatter(X_test[:,0], X_test[:,1], c=y_pred_1, marker= '*', s=100,edgecolors='black')
8 plt.title("Predicted values with k=1", fontsize=20)
9 plt.show()

```

