Program Code : OMC309
Course : AI and ML

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Naive Bayes and KNN

Algorithm

1. Load the iris dataset from sklearn
2. split the dataset into test/train ~~80/20~~ 20/80
3. Train Naive Bayes and K-Nearest Neighbors (K=5) classifier
4. Predict on test split
5. Evaluate using accuracy, precision and recall.

Code

```
import numpy as np
import pandas as pd
from sklearn import datasets
from sklearn.model_selection import train_test_split
from sklearn.naive_bayes import GuassianNB
from sklearn.neighbors import KNeighborsClassifier
from sklearn.metrics import accuracy_score, precision_score,
    recall_score.


iris = dataset.load_iris()
X = iris.data
y = Iris.target
Xtrain, X test, y train, y_test = train_test_split(X, y, test_size=0.2)

nbclassifier = GuassianNB()
knn_classifier = KNeighborClassifier (n_neighbor = 5)
```

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```
nb_classifier - fit (X_train ,y_train)
knn_classifier fit (X_train , y_train)

y_pred_nb = nb_classifier . predict (X_test)
y_pred_knn = classifier . predict (X_test)


def evaluate_model (y_true , y_pred , modelname):
  print (modelname)
  print (f" accuracy : {accuracy_score (y_true, y_pred ) }" )
  print (f" recall  : { recall_score  (y_true , y_pred)}")
  print (f" precision : { precision_score (y_true ,y_pred)}")


evaluate_model (y_test , y_pred_nb  , "Naive Bayes" )
 evaluate_model (y_test , y_pred_knn , ."k Nearest Neighbors' )
```

Output

```
Naive Bayes
 accuracy  1.0
 recall 1.0
  precision  1.0

 K Nearest Neighbors
  accuracy 1.0
  recall    1.0
   precision 1.0
```