

Name: Deepankar Sharma

Student ID: 233512013

Program Name: MCA

Course Code (**OMC309**)

Course Title (**Artificial Intelligence and Machine Learning Laboratory**)

```
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 GaussianNB
from sklearn.neighbors import KNeighborsClassifier
from sklearn.metrics import accuracy_score, precision_score,
recall_score

iris = datasets.load_iris()
X = iris.data
y = iris.target

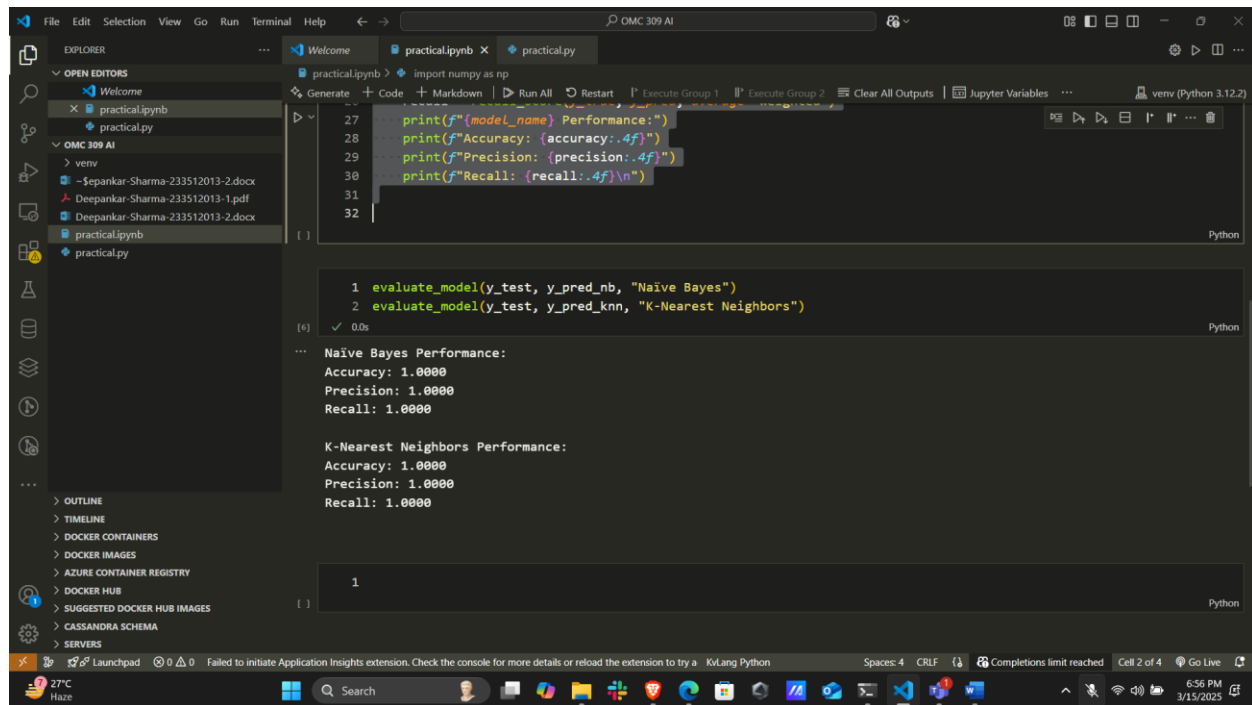
X_train, X_test, y_train, y_test = train_test_split(X, y,
test_size=0.2, random_state=42)

nb_classifier = GaussianNB()
nb_classifier.fit(X_train, y_train)
y_pred_nb = nb_classifier.predict(X_test)

knn_classifier = KNeighborsClassifier(n_neighbors=5)
knn_classifier.fit(X_train, y_train)
y_pred_knn = knn_classifier.predict(X_test)

def evaluate_model(y_true, y_pred, model_name):
    accuracy = accuracy_score(y_true, y_pred)
    precision = precision_score(y_true, y_pred,
average='weighted')
```

```
recall = recall_score(y_true, y_pred, average='weighted')
print(f"{model_name} Performance:")
print(f"Accuracy: {accuracy:.4f}")
print(f"Precision: {precision:.4f}")
print(f"Recall: {recall:.4f}\n")
```



The screenshot shows a Jupyter Notebook interface within a VS Code editor. The notebook is titled 'practical.ipynb' and is running in a Python 3.12.2 environment. The code in the notebook is as follows:

```
import numpy as np

27 print(f"{model_name} Performance:")
28 print(f"Accuracy: {accuracy:.4f}")
29 print(f"Precision: {precision:.4f}")
30 print(f"Recall: {recall:.4f}\n")
31
32
```

The notebook output shows the performance metrics for two models:

```
1 evaluate_model(y_test, y_pred_nb, "Naive Bayes")
2 evaluate_model(y_test, y_pred_knn, "K-Nearest Neighbors")

[6] ✓ 0.0s

...
Naive Bayes Performance:
Accuracy: 1.0000
Precision: 1.0000
Recall: 1.0000

K-Nearest Neighbors Performance:
Accuracy: 1.0000
Precision: 1.0000
Recall: 1.0000
```

The bottom of the screenshot shows the VS Code interface with the Explorer, Search, and Run and Debug panels. The status bar at the bottom indicates the current file is 'practical.py' and the environment is 'venv (Python 3.12.2)'.