

```
In [2]: # Import required libraries
import numpy as np
import pandas as pd
from sklearn.datasets import load_iris
from sklearn.model_selection import train_test_split
from sklearn.naive_bayes import GaussianNB
from sklearn.metrics import accuracy_score, classification_report
```

```
In [4]: # Load the Iris dataset
iris = load_iris()
X = iris.data
y = iris.target
```

```
In [6]: # Split the dataset into training and test sets
X_train, X_test, y_train, y_test = train_test_split(
    X, y, test_size=0.3, random_state=42, stratify=y
)
```

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In [8]: # Initialize and train the Naive Bayes classifier
nb_classifier = GaussianNB()
nb_classifier.fit(X_train, y_train)
```

```
Out [8]: GaussianNB
GaussianNB()
```

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In [10]: # Predict using the test data
y_pred = nb_classifier.predict(X_test)
```

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In [12]: # Compute and display accuracy
accuracy = accuracy_score(y_test, y_pred)
print(f"Accuracy of the Naive Bayes Classifier: {accuracy:.2f}")
```

Accuracy of the Naive Bayes Classifier: 0.91

```
In [14]: # Detailed classification report
print("\nClassification Report:")
print(classification_report(y_test, y_pred, target_names=iris.target_names))
```

```
Classification Report:
              precision    recall  f1-score   support

   setosa         1.00        1.00        1.00         15
  versicolor      0.82        0.93        0.88         15
   virginica      0.92        0.80        0.86         15

 accuracy                   0.91         45
```

macro avg	0.92	0.91	0.91	45
weighted avg	0.92	0.91	0.91	45