jupyter iris Last Checkpoint: 22 minutes ago

File Edit View Run Kernel Settings Help

Trusted

Code

JupyterLab Python 3 (ipykernel)

[12]:
```
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.tree import DecisionTreeClassifier
from sklearn.metrics import accuracy_score, classification_report, confusion_matrix
import seaborn as sns
import matplotlib.pyplot as plt
```

[26]:
```
file = "D:\\intership\\New folder\\IRIS.csv"

data = pd.read_csv(file)


data.head()
```

[26]:

	sepal_length	sepal_width	petal_length	petal_width	species
0	5.1	3.5	1.4	0.2	Iris-setosa
1	4.9	3.0	1.4	0.2	Iris-setosa
2	4.7	3.2	1.3	0.2	Iris-setosa
3	4.6	3.1	1.5	0.2	Iris-setosa
4	5.0	3.6	1.4	0.2	Iris-setosa

[27]:
```
#Check missing values
data.isnull().sum()
```

[27]:
```
sepal_length    0
sepal_width     0
petal_length    0
petal_width     0
species         0
dtype: int64
```

[30]:
```
# Encode the species labels to numerical values
data['species'] = data['species'].astype('category').cat.codes
data.head()
```

[30]:

	sepal_length	sepal_width	petal_length	petal_width	species
0	5.1	3.5	1.4	0.2	0
1	4.9	3.0	1.4	0.2	0
2	4.7	3.2	1.3	0.2	0
3	4.6	3.1	1.5	0.2	0
4	5.0	3.6	1.4	0.2	0

[32]:
```
# Define features and labels
X = data.drop(columns=['species'])
y = data['species']

# Split the data into training and testing sets
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.3, random_state=42)
```

[33]:
```
# Initialize the classifier
clf = DecisionTreeClassifier()

# Train the classifier
clf.fit(X_train, y_train)
```

[33]:
```
DecisionTreeClassifier()
```

*[34]:
```
y_pred = clf.predict(X_test)

accuracy = accuracy_score(y_test, y_pred)
print(f'Accuracy: {accuracy:.2f}')


print(classification_report(y_test, y_pred))

# confusion matrix
conf_matrix = confusion_matrix(y_test, y_pred)
print(conf_matrix)


sns.heatmap(conf_matrix, annot=True, cmap='Blues', fmt='g')
plt.xlabel('Predicted')
plt.ylabel('Actual')
plt.title('Confusion Matrix')
plt.show()
```

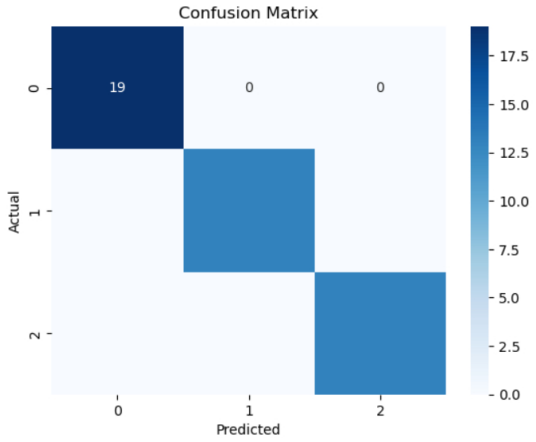
```
Accuracy: 1.00
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        19
           1       1.00      1.00      1.00        13
           2       1.00      1.00      1.00        13
```

```
              precision    recall  f1-score   support

    accuracy                         1.00        45
   macro avg       1.00      1.00      1.00        45
weighted avg       1.00      1.00      1.00        45

[[19  0  0]
 [ 0 13  0]
 [ 0  0 13]]
```



[ ]: