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PRACTICAL 2

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from sklearn.datasets import load_breast_cancer
from sklearn.model_selection import train_test_split
from sklearn.neighbors import KNeighborsClassifier
from sklearn.metrics import accuracy_score, classification_report,
confusion_matrix

# Load the Breast Cancer dataset
breast_cancer = load_breast_cancer()
X = breast_cancer.data
y = breast_cancer.target

# Split the data into training and testing sets
X_train, X_test, y_train, y_test = train_test_split(X, y,
test_size=0.2, random_state=42)

# Instantiate and train a classifier (e.g., K-Nearest Neighbors)
classifier = KNeighborsClassifier()
classifier.fit(X_train, y_train)

# Make predictions on the test set
y_pred = classifier.predict(X_test)

# Calculate evaluation metrics
accuracy = accuracy_score(y_test, y_pred)
conf_matrix = confusion_matrix(y_test, y_pred)
classification_rep = classification_report(y_test, y_pred)

# Display the results
print(f"Accuracy: {accuracy:.4f}")
print("\nConfusion Matrix:\n", conf_matrix)
print("\nClassification Report:\n", classification_rep)

Accuracy: 0.9561

Confusion Matrix:
[[38  5]
 [ 0 71]]
```

Classification Report:

	precision	recall	f1-score	support
0	1.00	0.88	0.94	43
1	0.93	1.00	0.97	71
accuracy			0.96	114
macro avg	0.97	0.94	0.95	114
weighted avg	0.96	0.96	0.96	114