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ROLL NO: 25

PRACTICAL: 10

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import pandas as pd
from sklearn.datasets import load_breast_cancer
from sklearn.model_selection import train_test_split
from sklearn.svm import SVC
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 (80% training, 20%
testing)
X_train, X_test, y_train, y_test = train_test_split(X, y,
test_size=0.2, random_state=42)

# Instantiate the Support Vector Machine classifier
svm_classifier = SVC(kernel='linear') # Try other kernels like
'poly', 'rbf', or 'sigmoid'

# Train the classifier on the training set
svm_classifier.fit(X_train, y_train)

# Make predictions on the testing set
y_pred = svm_classifier.predict(X_test)

# Evaluate the classifier
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"Breast Cancer Dataset - Accuracy: {accuracy:.4f}")
print("\nConfusion Matrix:\n", conf_matrix)
print("\nClassification Report:\n", classification_rep)
```

Breast Cancer Dataset - Accuracy: 0.9561

Confusion Matrix:

```
[[39  4]
 [ 1 70]]
```

Classification Report:

	precision	recall	f1-score	support
0	0.97	0.91	0.94	43
1	0.95	0.99	0.97	71
accuracy			0.96	114
macro avg	0.96	0.95	0.95	114
weighted avg	0.96	0.96	0.96	114