NAME: GANESH KACHARE

ROLL NO : 12

# 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]] |

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