**Data Science Test 4**

**Que -** Calculate the accuracy, precision, recall, f1score of a trained RandomForest classification model, used sklearn inbuild load\_digits dataset ,Provide a step-by-step explanation and implementation, perform feature scaling, feature selection.

**Ans -**

import numpy as np

import pandas as pd

from sklearn.datasets import load\_digits

ds = load\_digits()

from sklearn.model\_selection import train\_test\_split

from sklearn.ensemble import RandomForestClassifier

from sklearn.metrics import accuracy\_score, precision\_score, recall\_score, f1\_score

X\_train, X\_test, y\_train, y\_test = train\_test\_split(digits.data, digits.target, test\_size=0.2, random\_state=42)

Distributed the dataset into the training and testing part

Use RandomForestClassifier to fit data to training data

model = RandomForestClassifier()

model.fit(X\_train, y\_train)

y\_pred = rf\_model.predict(X\_test)

Predict it on the test set

# Calculate the accuracy of it

accuracy = accuracy\_score(y\_test, y\_pred)

# Calculate precision

precision = precision\_score(y\_test, y\_pred, average='weighted')

# Calculate recall

recall = recall\_score(y\_test, y\_pred, average='weighted')

# Calculate F1 score

f1 = f1\_score(y\_test, y\_pred)

# Print all outputs (Scores)

print("Accuracy:", accuracy)

print("Precision:", precision)

print("Recall:", recall)

print("F1 Score:", f1)