import pandas as pd

import numpy as np

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

from sklearn.preprocessing import StandardScaler

from sklearn.neighbors import KNeighborsClassifier

from sklearn.metrics import confusion\_matrix, accuracy\_score, precision\_score, recall\_score

data = pd.read\_csv("Social\_Network\_Ads.csv") # change filename if different

X = data.iloc[:, [2, 3]].values # Usually Age and EstimatedSalary

y = data.iloc[:, -1].values # Purchased column

X\_train, X\_test, y\_train, y\_test = train\_test\_split(

X, y, test\_size=0.25, random\_state=42

)

sc = StandardScaler()

X\_train = sc.fit\_transform(X\_train)

X\_test = sc.transform(X\_test)

knn = KNeighborsClassifier(n\_neighbors=5, metric='minkowski', p=2)

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

y\_pred = knn.predict(X\_test)

cm = confusion\_matrix(y\_test, y\_pred)

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

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

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

error\_rate = 1 - accuracy

print("Confusion Matrix:\n", cm)

print("Accuracy:", accuracy)

print("Error Rate:", error\_rate)

print("Precision:", precision)

print("Recall:", recall)

Output:-

Confusion Matrix:

[[59 4]

[ 3 34]]

Accuracy: 0.93

Error Rate: 0.06999999999999995

Precision: 0.8947368421052632

Recall: 0.918918918918919