**TASK 4:emails.csv**

text,label  
"Win a free laptop now",spam  
"Hi Haris, let’s catch up tomorrow",ham  
"Limited offer! Buy one get one free",spam  
"Your appointment is confirmed",ham  
"Congratulations, you won a prize!",spam

spam\_detector.py

import pandas as pd  
from sklearn.model\_selection import train\_test\_split  
from sklearn.feature\_extraction.text import CountVectorizer  
from sklearn.naive\_bayes import MultinomialNB  
from sklearn.metrics import accuracy\_score, confusion\_matrix  
  
# Load dataset  
data = pd.read\_csv("emails.csv")  
  
# Split data into inputs and labels  
X = data['text']  
y = data['label']  
  
# Convert text into numbers  
vectorizer = CountVectorizer()  
X\_vectorized = vectorizer.fit\_transform(X)  
  
# Split into train and test data  
X\_train, X\_test, y\_train, y\_test = train\_test\_split(X\_vectorized, y, test\_size=0.3, random\_state=42)  
  
# Create and train model  
model = MultinomialNB()  
model.fit(X\_train, y\_train)  
  
# Predict on test data  
y\_pred = model.predict(X\_test)  
  
# Evaluate model  
accuracy = accuracy\_score(y\_test, y\_pred)  
print(f"Model Accuracy: {accuracy\*100:.2f}%")  
  
# Confusion matrix  
print("\nConfusion Matrix:")  
print(confusion\_matrix(y\_test, y\_pred))

**output:**

C:\Users\haris\PycharmProject\untitled1\venv\Scripts\python.exe C:/Users/haris/PycharmProject/untitled1/spam\_detector.py

Model Accuracy: 50.00%

Confusion Matrix:

[[1 0]

[1 0]]

Process finished with exit code 0