NAME : RUDRA SATANI

ENROLMENT NO : 22SE02ML071

SUBJECT : MACHINE LEARNING &ARTIFICIAL INTELLIGENCE

SUBJECT CODE : SEML3011

PRACTICAL : 5

**INPUT : NAVE BAYES**

from sklearn.feature\_extraction.text import CountVectorizer  
from sklearn.naive\_bayes import MultinomialNB  
from sklearn.model\_selection import train\_test\_split  
from sklearn.metrics import accuracy\_score  
  
# Sample dataset  
messages = [  
 'Free money now!!!',  
 'Call this number for a prize',  
 'Hi, how are you?',  
 'Win $1000 dollars now',  
 'Hello, do you want to meet for lunch?',  
 'Congrats! You won a free iPhone!',  
 'Normal meeting is scheduled',  
 'You have won a lottery'  
]  
labels = ['spam', 'spam', 'ham', 'spam', 'ham', 'spam', 'ham', 'spam'] # 'ham' means not spam  
  
# Convert text data into bag-of-words features  
vectorizer = CountVectorizer()  
X = vectorizer.fit\_transform(messages)  
  
# Split data into training and testing sets  
X\_train, X\_test, y\_train, y\_test = train\_test\_split(X, labels, test\_size=0.3, random\_state=42)  
  
# Initialize Naive Bayes classifier  
nb\_classifier = MultinomialNB()  
  
# Train the classifier  
nb\_classifier.fit(X\_train, y\_train)  
  
# Make predictions on the test set  
y\_pred = nb\_classifier.predict(X\_test)  
  
# Calculate accuracy  
accuracy = accuracy\_score(y\_test, y\_pred)  
print(f"Accuracy: {accuracy \* 100:.2f}%")  
  
# Test on new data  
new\_message = ["You won a free vacation!"]  
new\_message\_vector = vectorizer.transform(new\_message)  
prediction = nb\_classifier.predict(new\_message\_vector)  
print(f"The new message is predicted as: {prediction[0]}")

**OUTPUT:**

