

```
import pandas as pd
import numpy as np
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, classification_report
```

```
data = pd.read_csv('spam_sms.csv', encoding='latin-1')
data = data.rename(columns={'v1': 'label', 'v2': 'message'})
data = data[['label', 'message']]
```

```
data['label_num'] = data.label.map({'ham': 0, 'spam': 1})
```

```
X_train, X_test, y_train, y_test = train_test_split(
    data['message'], data['label_num'], test_size=0.2, random_state=1)
```

```
cv = CountVectorizer(stop_words='english')
X_train_cv = cv.fit_transform(X_train)
X_test_cv = cv.transform(X_test)
```

```
model = MultinomialNB()
model.fit(X_train_cv, y_train)
```

```
y_pred = model.predict(X_test_cv)
```

```
print('Accuracy:', accuracy_score(y_test, y_pred))
print('\nConfusion Matrix:\n', confusion_matrix(y_test, y_pred))
print('\nClassification Report:\n', classification_report(y_test, y_pred))
```

```
def predict_sms(text):
    vect = cv.transform([text])
    prediction = model.predict(vect)[0]
    return "Spam" if prediction == 1 else "Not Spam"
```

```
sample_text = "Congratulations! You won a free ticket to Bahamas. Call now!"
print('\nSample Prediction:', predict_sms(sample_text))
```