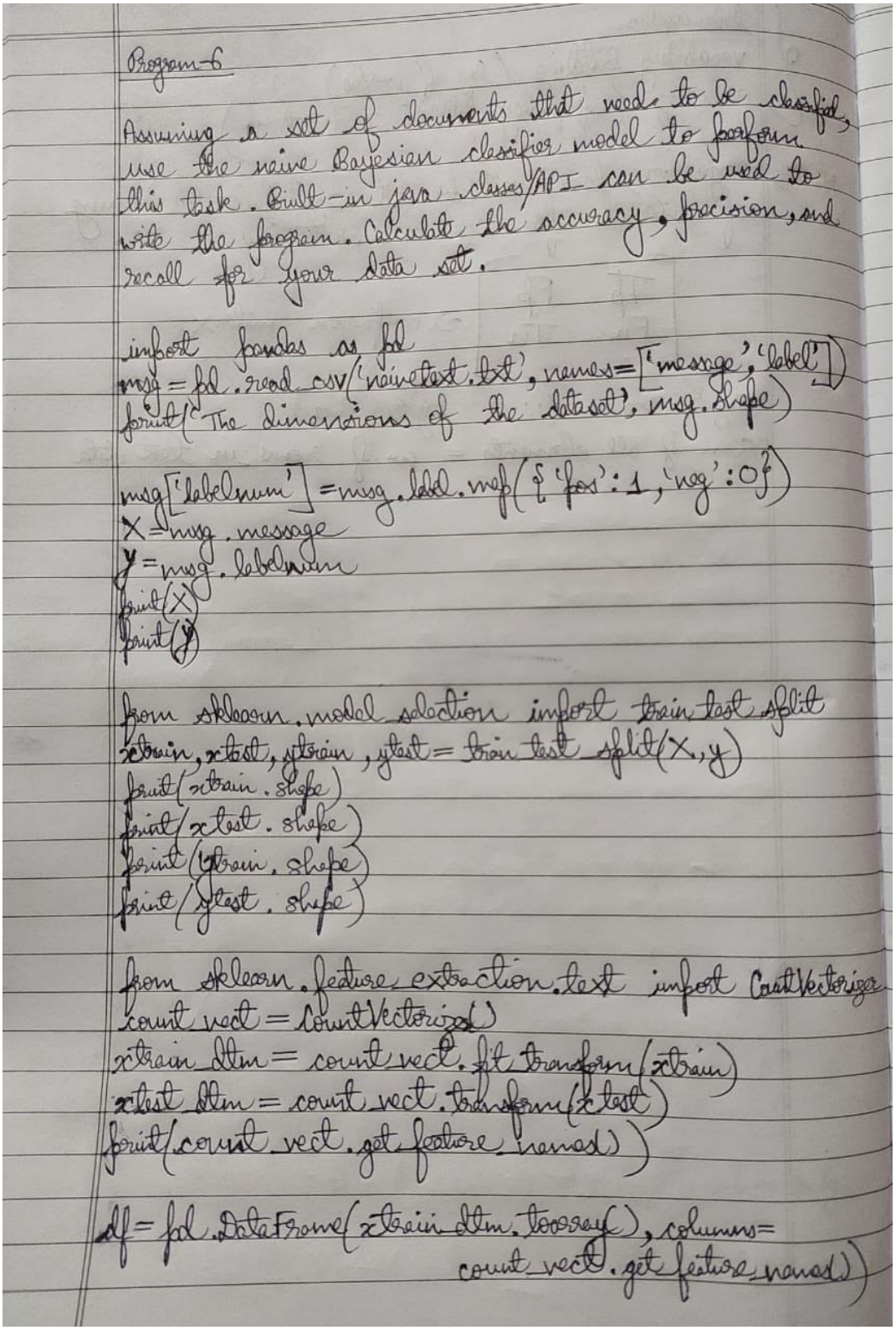
Text-Classifier

Code



Program-6

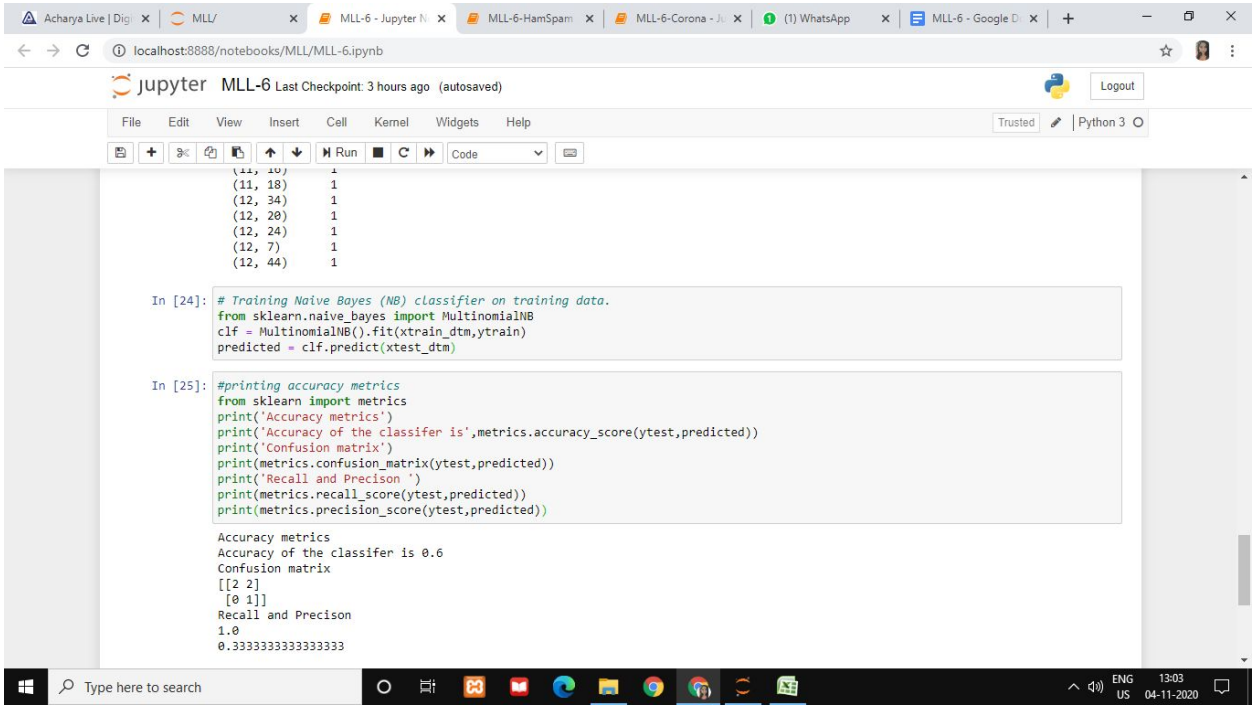
Assuming a set of documents that need to be classified, use the naive Bayesian classifier model to perform this task. Built-in java classes/API can be used to write the program. Calculate the accuracy, precision, and recall for your data set.

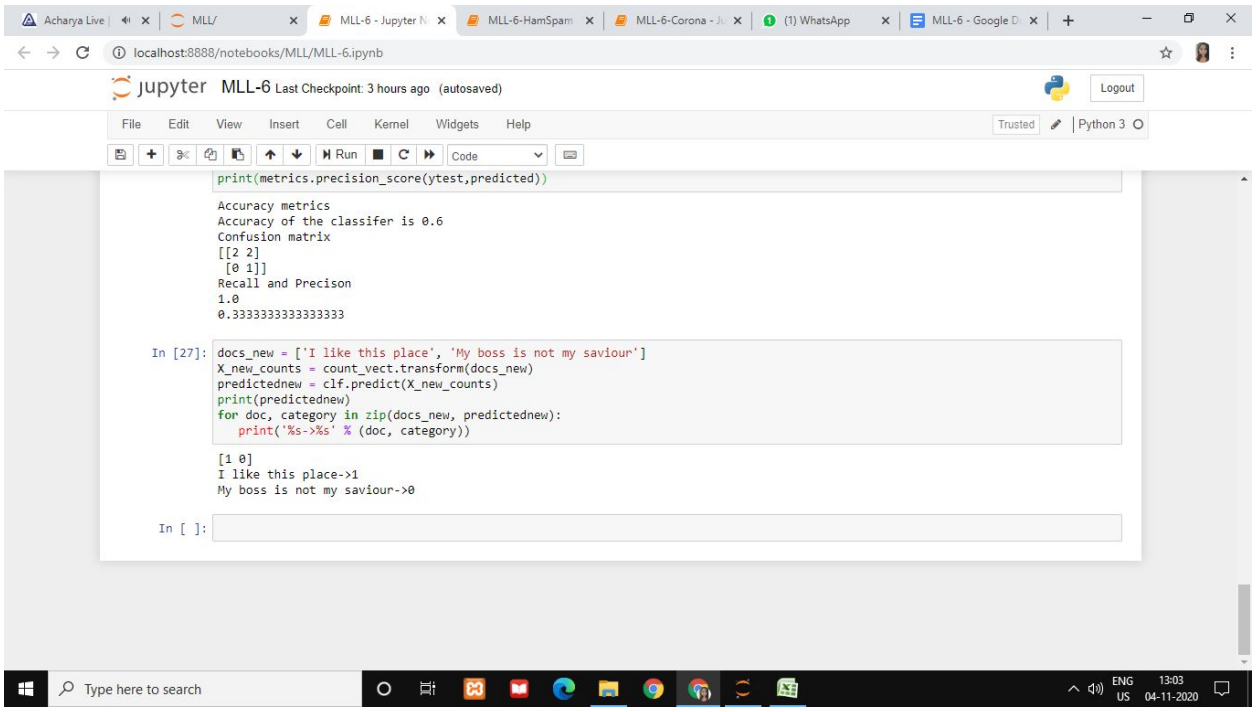
```
import pandas as pd
msg = pd.read_csv('naivetext.txt', names=['message', 'label'])
print('The dimensions of the dataset', msg.shape)

msg['labelnum'] = msg.label.map({'pos': 1, 'neg': 0})
X = msg.message
y = msg.labelnum
print(X)
print(y)

from sklearn.model_selection import train_test_split
xtrain, xtest, ytrain, ytest = train_test_split(X, y)
print(xtrain.shape)
print(xtest.shape)
print(ytrain.shape)
print(ytest.shape)

from sklearn.feature_extraction.text import CountVectorizer
count_vect = CountVectorizer()
xtrain_dtm = count_vect.fit_transform(xtrain)
xtest_dtm = count_vect.transform(xtest)
print(count_vect.get_feature_names())

df = pd.DataFrame(xtrain_dtm.toarray(), columns=
                  count_vect.get_feature_names())
```

```
print(df)
print(xtrain_dtm)

from sklearn.naive_bayes import MultinomialNB
clf = MultinomialNB().fit(xtrain_dtm, ytrain)
predicted = clf.predict(xtest_dtm)

from sklearn import metrics
print('Accuracy metrics')
print('Accuracy of the classifier is', metrics.accuracy_score(ytest, predicted))
print('Confusion matrix')
print(metrics.confusion_matrix(ytest, predicted))
print('Recall and Precision')
print(metrics.recall_score(ytest, predicted))
print(metrics.precision_score(ytest, predicted))

docs_new = ['I like this place', 'My boss is not my saviour']
X_new_counts = count_vect.transform(docs_new)
predicted_new = clf.predict(X_new_counts)
print(predicted_new)
for doc, category in zip(docs_new, predicted_new):
    print('%s -> %s' % (doc, category))
```

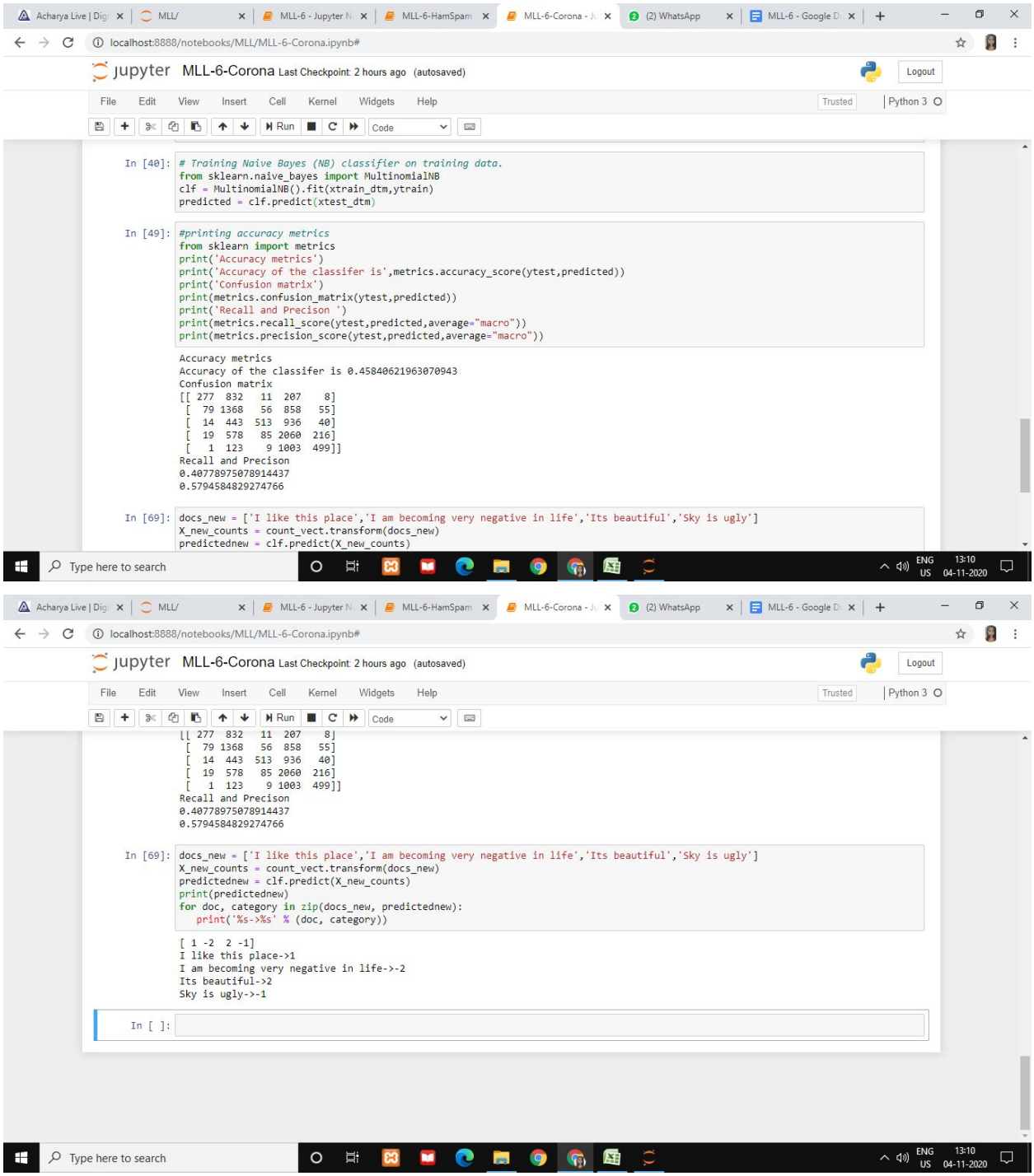
OUTPUT

1) Positive-negative sentence output

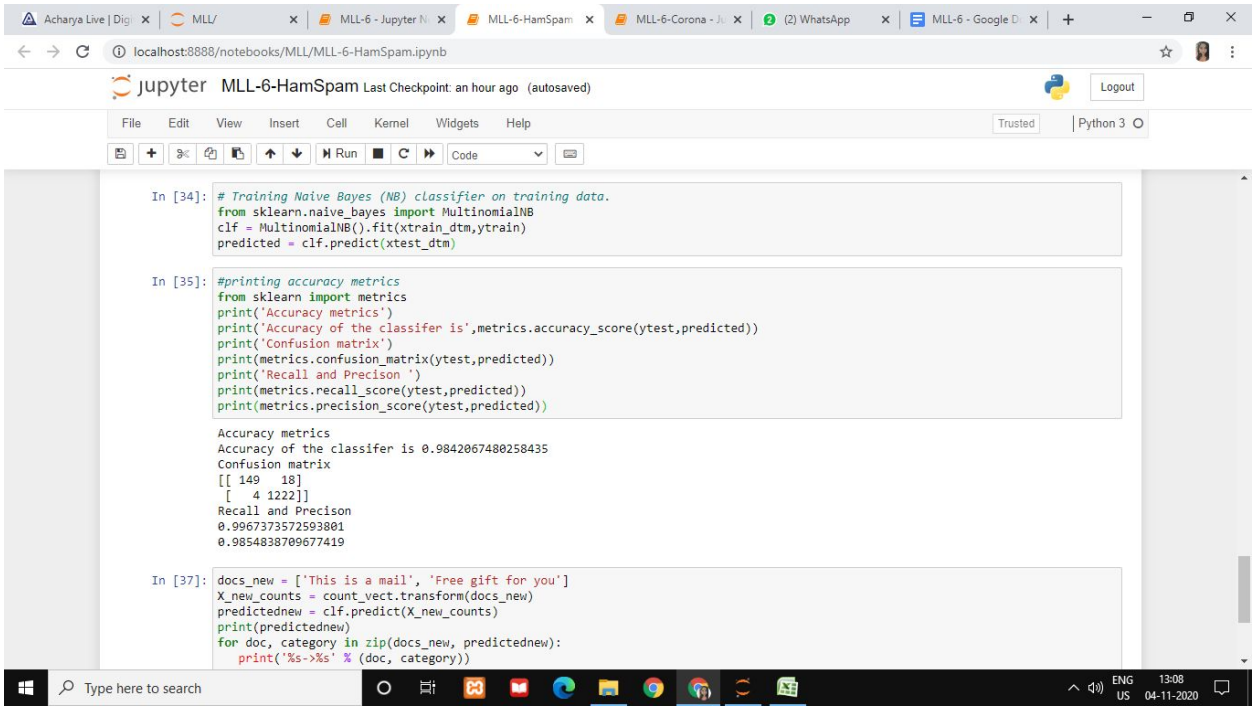




2) Corona-NLP dataset output



3) Ham-Spam dataset output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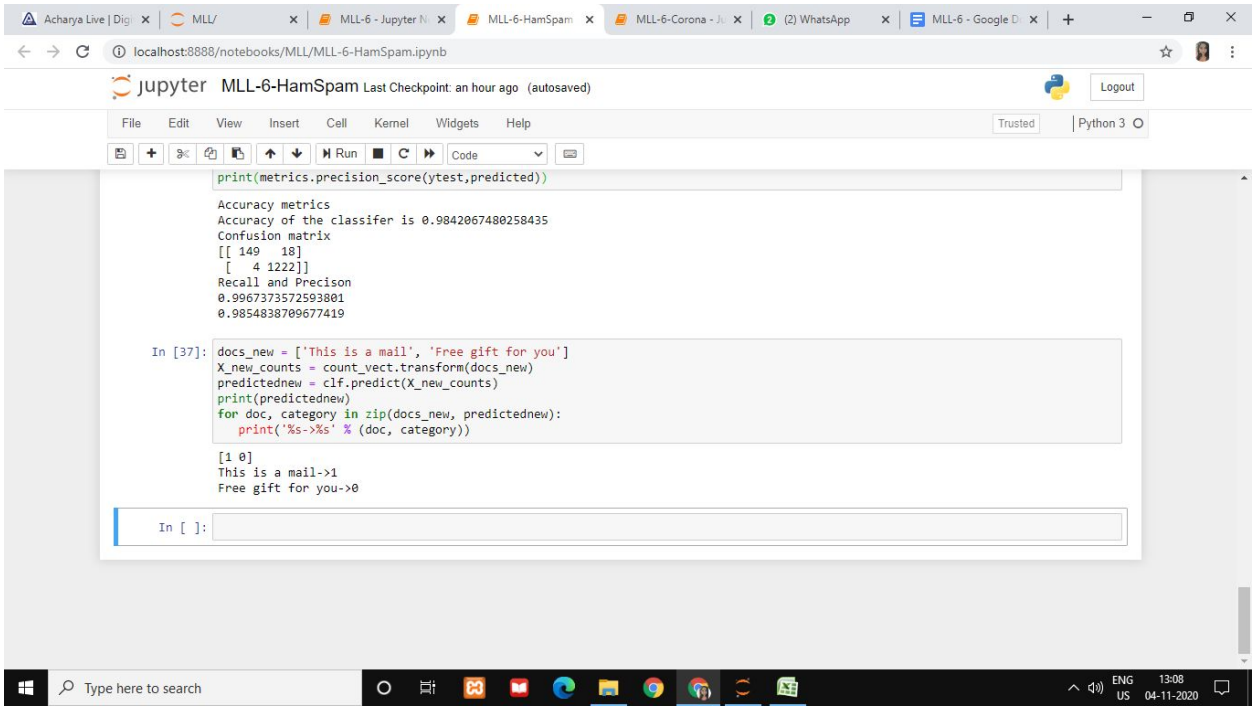
Logout
File Edit View Insert Cell Kernel Widgets Help
Trusted
Python 3
Run
Code
In [34]:
# Training Naive Bayes (NB) classifier on training data.
from sklearn.naive_bayes import MultinomialNB
clf = MultinomialNB().fit(xtrain_dtm,ytrain)
predicted = clf.predict(xtest_dtm)
In [35]:
#printing accuracy metrics
from sklearn import metrics
print('Accuracy metrics')
print('Accuracy of the classifer is',metrics.accuracy_score(ytest,predicted))
print('Confusion matrix')
print(metrics.confusion_matrix(ytest,predicted))
print('Recall and Precison ')
print(metrics.recall_score(ytest,predicted))
print(metrics.precision_score(ytest,predicted))
Accuracy metrics
Accuracy of the classifer is 0.9842067480258435
Confusion matrix
[[149 18]
[4 1222]]
Recall and Precison
0.9967373572593801
0.9854838709677419
In [37]:
docs_new = ['This is a mail', 'Free gift for you']
X_new_counts = count_vect.transform(docs_new)
predictednew = clf.predict(X_new_counts)
print(predictednew)
for doc, category in zip(docs_new, predictednew):
print('%s->%s' % (doc, category))
Type here to search
ENG
US
13:08
04-11-2020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Logout
File Edit View Insert Cell Kernel Widgets Help
Trusted
Python 3
Run
Code
print(metrics.precision_score(ytest,predicted))
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Confusion matrix
[[149 18]
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In [ ]:
Type here to search
ENG
US
13:08
04-11-2020