**Bays classifier for Text classification**

%matplotlib inline

import numpy as np

import matplotlib.pyplot as plt

import seaborn as sns; sns.set()

from sklearn.datasets import fetch\_20newsgroups

data = fetch\_20newsgroups()

data.target\_names

categories = ['talk.religion.misc', 'soc.religion.christian', 'sci.space', 'comp.graphics']

train = fetch\_20newsgroups(subset='train', categories=categories)

test = fetch\_20newsgroups(subset='test', categories=categories)

print(train.data[6])

from sklearn.feature\_extraction.text import TfidfVectorizer

from sklearn.naive\_bayes import MultinomialNB

from sklearn.pipeline import make\_pipeline

model = make\_pipeline(TfidfVectorizer(), MultinomialNB())

model.fit(train.data, train.target)

labels = model.predict(test.data)

from sklearn.metrics import confusion\_matrix

mat = confusion\_matrix(test.target, labels)

sns.heatmap(mat.T, square=True, annot=True, fmt='d', cbar=False,

xticklabels=train.target\_names, yticklabels=train.target\_names)

plt.xlabel('true label')

plt.ylabel('predicted label');

def predict\_category(s, train=train, model=model):

pred = model.predict([s])

return train.target\_names[pred[0]]

predict\_category('sending a payload to the ISS')

predict\_category('discussing islam vs atheism')

predict\_category('determining the screen resolution')