

CSE 3521 HW3 Programming

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1.output from NaiveBayes.py

```
tron@LAPTOP-4KENADR8:/mnt/c/SP22/CSE3521/HW/3/NaiveBayes$ python3 NaiveBayes.py
NaiveBayes.py:186: RuntimeWarning: divide by zero encountered in log
  label_probability[dimension-1] += np.log(self.conditional[dimension][word_index])
Total Sentences correctly: 775
Predicted correctly: 580
Accuracy: 74.83871%
```

2.output from NaiveBayes_improved.py

```
tron@LAPTOP-4KENADR8:/mnt/c/SP22/CSE3521/HW/3/NaiveBayes$ python3 NaiveBayes_improved.py
Total Sentences correctly: 775
Predicted correctly: 687
Accuracy: 88.64516%
```

3. What I did in NaiveBayes_improved.py

Since the error states we shouldn't "divide by zero". Then we may want to focus on the fraction part of our code. I added 1s to both side of the fraction as the code snippets shown below to fix the error.

```
#calculate probability
for i in range(3):
    self.conditional[i] = (self.conditional[i]+1)/(self.prior[i]+1)

self.prior = (self.prior+1) / (sum(self.prior)+1)
```