HW10: Classification

CS 4300: Artificial Intelligence **Tucker Hermans**
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1 Naïve Bayes

Alice decides to build a naïve Bayes classifier to distinguish between emails from Professor Bob and Professor Clarence. She has collected the following examples of emails from these two Professors. She uses a bag of words model as features. Compute every parameter for the naïve Bayes classifier using maximum likelihood and classify the final test examples.

Bob	all students did great on this assignment
Bob	students should come to my office
Bob	should you need help talk to the ta
Bob	the ta did great grading this assignment
Clarence	no one did this assignment on time
Clarence	all students should fail
Clarence	the assignment is graded by the ta

1. Test example 1: "you did great"
2. Test example 2: "no students should fail"
3. Did the classifier do what you think it should? If not, why not?
4. Recompute and reclassify the test examples using Laplace smoothing rather than maximum likelihood. Did the classifier do what you think it should? If not, why not? Did the classifications change?