

Homework 5

CS 6243 – Spring 2005
Tom Bylander, Instructor

assigned February 17, 2005
due February 24, 2005

1. (50 pts.) Learn the probabilities for Naive Bayes for the following training examples. Use Laplace's law of succession to estimate conditional probabilities.

Attributes				Class
x_1	x_2	x_3	x_4	y
0	0	0	0	1
0	1	0	0	1
0	1	1	0	1
0	1	1	1	1
1	1	0	0	1
1	1	0	1	1
0	0	0	1	-1
0	0	1	1	-1
1	0	0	1	-1
1	0	1	0	-1
1	1	1	1	-1

2. (50 pts.) How well does your Naive Bayes hypothesis perform on the following test examples? Show your work.

Attributes				Class
x_1	x_2	x_3	x_4	y
0	0	1	0	1
0	1	0	1	1
1	1	1	0	1
1	0	0	0	-1
1	0	1	1	-1

3. (50 pts., shared extra credit) What boolean expression did the instructor use to generate the examples? [Shared extra credit means that if n students correctly answer this problem, they each get $50/n$ points.]