**HW8**

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1.

**Part a**

Code submitted

Even on initializing on different values, the parameter values stays the same on convergence. The class number itself changed like permutations sometimes, but the set of values were same on convergence.

**Part b**

Code submitted.

**Part c**

The worst case misclassification mean is 75% when the attribute 6 is selected uniformly at random because there are 4 possible values of attribute 6. The worst case mean misclassification rate is 56% using EM by Naive Bayes model.

As the is classification is lesser than random, the Naive Bayes model is better.

**Extra credit,**

On running multiple times on test set,

0.56 was the mean of 30 samples of the naive bayes test

m=.56

mu=0.75

For s=30, for 1 tailed t test, t.29=1.69

t=m−μ/(s√n)

Sample variance =0.97

mean=.56

mu=0.75

t=3.57>1.69

Thus, Naive Bayes is significantly better than random test.