

1. a+b)

Model	Max_iter	Accuracy	Log Likelihood
NB	N/A	0.9827586206896551	-504030.38211330323
NB+EM	1	1.0	-849720.0221016847
NB+EM	2	0.8103448275862069	-848134.7361151822
NB+EM	10	0.6896551724137931	-846701.2475447119

c) The Naïve Bayes likelihood is greater than Naïve Bayes EM likelihood. The reason might be because Naïve Bayes is a binary while Naïve Bayes EM is not restricted to binary so the likelihood would decrease because there are more categories to choose from. The accuracy of the NB+EM models decrease the more iterations because the model is logarithmic so at some point the useful “good” information will stop improving the accuracy. However, the iterations keep adding more information so the un-useful “bad” data will start to skew the accuracy.