BBM 409 Machine Learning Lab Assignment 3

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December 2, 2017

1. What are differences between logistic regression and linear regression? The main different is the variable type. When the linear regression has continuous variables like numeric values, the logistic regression needs binary values. The other difference is the algorithm type. When the linear regression needs least square estimation, the logistic regression needs maximum likelihood estimation algorithm. In addition, linear regression is used to estimate the dependent variable when logistic regression is used to calculate the probability of an event.

2. What are differences between logistic regression and naive bayes methods? When naive bayes estimates a joint probability from the training data, logistic regression estimates the probability from the training data by minimizing error. The other difference is limitations. When naive bayes can even with less training data, the logistic regression, model estimates may over fit the data. In addition, when the naive bayes assumes all the features are conditionally independent, logistic regression splits feature space linearly.

References

https://statisticalhorizons.com/linear-vs-logistic

https://papers.nips.cc/paper/2020-on-discriminative-vs-generative-classifiers-a-comparison-of-logistic-regression-and-naive-bayes.pdf