Homework #2. AMS 580

Name:_____**SBU ID:**_____

Dear all, this homework is due by 8am, February 15. Please submit your homework to the Brightspace in two files: (1) the RMD file., and (2) the output of the RMD file – saved as a word document or PDF file. If you have trouble submitting the quiz to the Brightspace, please email it to your TA Ian at: weihao.wang@stonybrook.edu

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Logistic Regression (A type of Generalized Linear Model) with the Banknote Data*

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Please fit a logistic regression using the tennis and weather data in the CART lecture
notes.
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1. (a) Please use the entire 14 observations in the lecture notes as the training data.
   The testing data are six new observations provided in the Tennis_Test.xlsx dataset.
   (b) Then you shall fit a logistic regression model with all 4 predictors using the training data.
   (c) Please use this fitted model based on the training data to predict the response variable 'class' (whether play tennis or not) for the testing data. Please generate the confusion matrix, and report:
   - (i) The overall accuracy;
   - (ii) The sensitivity (that is, the probability of "Yes" to tennis given that it was in fact "Yes");
   - (iii) The specificity (that is, the probability of "No" to tennis given that it was in fact "No").

   Dear all, we hope that through this simple example, you can understand the notions in HW1 solutions entirely.