**STT 811**

**In-Class Assignment 7**

This problem will use the Heart dataset. The target is the AHD field.

1. Create a target based on the AHD field with numerical values of 0 and 1.
   1. heart$y <- ifelse(heart$AHD=="Yes",1,0)
2. Build a logistic regression model for your target based on MaxHR, RestBP, and ChestPain. How significant are the coefficients?
   1. heart\_mod <- glm(data = heart, y ~ MaxHR + RestBP + as.factor(ChestPain), family = binomial)
   2. all values are significant to at least the 0.05 level, some even further
3. Calculate the risk of heart disease based on this model for someone with a Maximum Heart Rate of 170, a Resting Blood Pressure of 145, and nontypical Chest Pain. Express the risk both as a probability and as an odds ratio.
   1. b0 = 2.915699, b1 = -0.032991, b2 = 0.021750, b3 = -2.010243
   2. x1 = 170, x2 = 145
   3. y1 <- 1/(1+exp(-(b0+b1\*x1+b2\*x2+b3)))
   4. y1 = 0.1751926
   5. odds <- 0.1904762
4. Create the confusion matrix for this model, based on the y values and the fitted values.
   1. confusionMatrix(data = as.factor(as.integer(2\*heart\_mod$fitted.values)), reference = as.factor(heart$y))
   2. Text

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