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CS171 PS1

1. To find the probability of actually having the disease we can use bayes rule.

$$P(B) = \frac{(P(B|A)\,P(A))}{(P(B|A)\,P(A)) + ((P(B|\ not\ A)\,P(not\ A))}$$

$$= \frac{(.99)(.00025)}{(.99)(.00025) + (.01)(.99975)} = .0241 = 2.41\%\ \text{chance}$$

3. Some of the features have similar effects on the median value of owner-occupied homes in $1000s while others have unique effects on it. Feature 9 and 10 (access to radial highways and full-value property-tax rate) seem to affect the home value similarly. Feature 1 and 13 (crime rate and % of lower status) seem to decrease as the median housing value increases. For feature 7 (age of home) the median value of the home does not seem to change too much when the age of the home changes.

4c. When executing the plotacc function with the data from the dragan example and using my ridgells and llserr functions, I get this graph. The plotacc function plots the change in the mean squared error for both the training set and the testing set as the regularization constant(lambda) increases. As the lambda increases, the mean squared error in the training set increases and the mean squared error in the testing set decreases.