CMSE 381: HW4

1 (20 pts) Exercise 4.7.2

2 (20 pts) Exercise 4.7.3

3 (20 pts) Let $p(X) = \Pr(Y = 1|X)$ where $Y \in \{0, 1\}$ and assume the logistic regression model, namely,

$$\log\left(\frac{p(X)}{1 - p(X)}\right) = \beta_0 + \beta_1 X.$$

Given a training set data $\{(y_1, x_1), \ldots, (y_n, x_n)\}$, we want to fit a logistic regression. As discussed in the class, we will use maximum likelihood framework to find $\hat{\beta}_0$ and $\hat{\beta}_1$. Write out the log likelihood of the training data.

4 (20 pts) Exercise 4.7.10

5 (20 pts) Exercise 4.7.12