ECE 595 Homework 4 Due: 4 PM, Oct. 13

Using the attached data file, ex2data1.txt, perform a multivariate logistic regression with the two features, Exam 1 score and Exam 2 score for the admitted and not admitted classes. The decision boundary for the two-feature case is a straight line. (Features do not need to be normalized for this case.)

Note that the data file was created in MATLAB; hence, you can open it using

data = load('ex2data1.txt');

X = data(:, [1, 2]); y = data(:, 3); % y has values of 0 and 1.

Initialize the parameters using

theta = zeros(n + 1, 1); % The size of theta (n) must have been defined.

Gradient calculation, hypothesis and parameter updating need to be carried out in vectorized form.

You need to turn in the following.

1. Scatter plot of the two features with y = 1 and y = 0 distinguished. This may look like the figure shown below.



1. Cost at initial theta of all zeros.
2. Parameter values for theta.
3. Cost after 400 iterations of logistic regression algorithm.
4. Training accuracy.
5. Probability of getting admitted for a student with Exam 1 score of 45 and Exam 2 score of 85.