Indian Institute of Information Technology Guwahati
CS360: Lab Experiment 5

Linear and Logistic Regression

Date: 03.09.2019 Total Marks: 20
Deadline: 09.09.2019

Here you can use experiments in Andrew Ng's machine learning course as reference. The necessary files are attached along with this question.

Q.1) Linear Regression
The folder *ex1* contains necessary files and *ex1.pdf* can be used for help.

a) One variable
   1. Use the data *ex1data1.txt* and plot it
   2. Find parameters using gradient descent
   3. Compute and Visualize cost function J() using surface and contour plot

b) Multi variable
   1. Use the data *ex1data2.txt* and plot it
   2. Feature normalization using mean and standard deviation
   3. Find parameters using gradient descent
   4. Plot the convergence graph using the cost of each iteration
   5. Find parameters using normal equation

10 marks

Q.2) Logistic Regression

a) Without regularization
   1. Use the data *ex2data1.txt* and plot it
   2. Find parameters using optimization function *fminunc()*
   3. Predict the accuracy of training data

b) With regularization
   1. Use the data *ex2data2.txt* and plot it
   2. Find parameters with regularization

10 marks