Homework 1

Due Sept 28 5pm

1. Using Linear-regression.train.csv provided, write a gradient descent algorithm to find the curve /line (having parameters θ1 and θ0 )that best fits the point based on the idea of linear regression.

**Algorithm (setup)**

1. Initialize both the parameters as 1.
2. Set step size /learning rate to .01.
3. You can stop if you have exhausted 100 iterations.
4. You can also stop before if the change in the objective from a previous iteration is less than a tolerance (set to .001)

**Deliverables (submit to dropbox hw1 as a doc/docx file)**

1. Output the least squares error and parameters of the function learnt.
2. Plot the least squares error in each iteration
3. In a separate figure, Plot the line found via the optimization (in red) and the original points (in blue)