Lab Assignment 5: Optimization for Machine Learning

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(1) Consider the 2 column data set. Write code for linear regression using gradient descent method. Choose $f(\beta) = \frac{1}{2N}\sum_{i=1}^{N}(\beta_1 x_i + \beta 2 - y_i)^2$ and stopping condition $\|\nabla f(x)\| < 0.01$.

(2) Write code for stochastic gradient for the above problem with 20 random points in every iterations.

(3) Consider the 2 column data set. Write code for best fitting quadratic polynomial using gradient descent method. Choose stopping condition $\|\nabla f(x)\| < 0.01$.

(4) Write code for stochastic gradient for the above problem with 20 random points in every iterations.