

# Machine Learning – WS'12

## Exercise-2

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### **Problem-1:**

For 'restaurant' data provided in Exercise-1, program a Gradient Descent algorithm that minimizes cost function of Uni-variate Linear Regression by learning optimal values for 'Θ' (theta's). The objective of linear regression is to minimize the cost function

$$J(\theta) = \frac{1}{2m} \sum_{i=1}^m (h_{\theta}(x^{(i)}) - y^{(i)})^2$$

Where the hypothesis  $h_{\theta}(x)$  is given by linear model

$$h_{\theta}(x) = \theta^T x = \theta_0 + \theta_1 x_1$$

You are provided with three octave code files. You are required to provide implementation to 'computeCost.m' and 'gradientDescent.m' functions. These functions are called through 'ex2.m', which also needs to be filled in with implementation regarding loading of data, plotting of linear fit using final parameters learned through gradient descent.