ML notes from Stanford University Course

From the basics ML can be classified as unsupervised learning and supervised learning.

Supervised Learning tasks use labeled data fed into a model to output a prediction on new data

Unsupervised Learning tasks use unlabeled data and try to find clusters or groups of data that indicate some form of a trending.

A Regression is a model that predicts an continuous value.

A classification distinguishes data into discrete classes.

Univariate Linear Regression:

Y = B0 + B1x

Y as the variable to be predicted, x as the input variable

MultiVariate Linear Regression:

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Cost Function:

A measure of how accurate the model is at predicting a value.

Gradient Descent :

Repeat{

} Simultaneous updates for each j = 0,…,n.

Ie the partial derivative of the cost function with respect to an I, where 0<=i<=n.

Regularization for Linear Regression:

For Gradient Descent:

Or by factorizing:

Regularization takes care of non-invertibility of normal eqn for linear regression.

If :

In bold will always be invertible.