LVC 1 - Glossary of Notations

$\mathbf{X}_i$ = Vector containing values of input features corresponding to i^{th} record, where i ranges from 1 to n

$\mathbf{Y}_i$ = Value of output variable corresponding to i^{th}record

X_i= i^{th} component of a vector $\mathbf{X}$

θ = The unknown parameter vector

∈= Belongs to

R^m= A set of m real numbers

P^θ= The distribution of the parameter θ

$\hat{\theta}$ = The estimator to estimate θ

g = The function of input features that determines the value of θ

E= Expected value or average

≠ = Not equal to

θ^*= True quantity or true value of θ

$g^*(X)$ = Actual value of $g(X)$

$E[Y|X]$= Expected value of Y given X

n= Number of records

i = The iterator

Σ = The summation

$\sum_{i=1}^{n} x_i$ = Summation of x_i from i equals 1 to n

θ^T = Transpose of the vector θ

m = Number of features

$\frac{\partial H}{\partial \theta}$= Partial derivative of H with respect to θ. It is also represented as $\nabla H(\theta)$

$P(Y|X)$ = Probability of Y given X

Π = The product

$\prod_{i=1}^{n} x_i$ = Product of x_i from i equals 1 to n

σ = Standard deviation

RSS = Residual sum of squares

TSS = Total sum of squares

R^2 = R-squared, i.e., the fraction of variation in target variable that has been explained by the features

$\overline{Y}$ = Predicted output label if no regression is deployed i.e. mean of all true quantities

$var(x)$ = Variance of the quantity x

$cov(a, b\ )$ = covariance of the quantities a and b

W_i = Residual term in the linear regression equation

$N(\theta^*_j, \sigma^2_j)$ = Normal distribution with mean θ^*_j and variance σ^2_j

$m \ll n$ = m is very less than n

$se(\widehat{\theta}_j)$ = Standard error of $\widehat{\theta}_j$

CI = Confidence interval

$\approx$ = Approximately equal to

$P(\theta^*_j \in CI)$ = Probability of θ^*_j belonging to the confidence interval CI