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

 $\prod x_i$ = 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

 $N(\theta_{j}^{*}, \sigma_{j}^{2}) = \text{Normal distribution with mean } \theta_{j}^{*} \text{ and variance } \sigma_{j}^{2}$

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

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

CI =Confidence interval

 \approx = Approximately equal to

 $P(\theta_{i}^{*} \in CI)$ = Probability of θ_{i}^{*} belonging to the confidence interval CI