

K - Predictor Variables

Ani	Body Weight y	BC x_1	HEI x_2	x_3	x_4	\dots	x_k
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$$L = \sum_{i=1}^N [y_i - b_0 - b_1 x_{i1} - b_2 x_{i2} - b_3 x_{i3} - \dots - b_k x_{ik}]^2 \rightarrow \min$$

$$\begin{aligned} b_0 &= \\ b_1 &= \\ &\vdots \\ b_k &= \end{aligned}$$

Simplified Notation : Matrix - Vector

Matrix : $X = \begin{bmatrix} x_{10} & x_{11} & x_{12} \\ x_{20} & x_{21} & x_{22} \\ \vdots & \vdots & \vdots \\ x_{N0} & x_{N1} & x_{N2} \end{bmatrix}$

$\underbrace{\begin{bmatrix} x_{10} \\ x_{20} \\ \vdots \\ x_{N0} \end{bmatrix}}_{\text{all}=1} \rightarrow \text{Intercept}$
 $\underbrace{\begin{bmatrix} x_{11} \\ x_{21} \\ \vdots \\ x_{N1} \end{bmatrix}}_{\text{Bread circumference}} \rightarrow \text{Height}$

Vectors : $y = \begin{bmatrix} y_1 \\ y_2 \\ \vdots \\ y_N \end{bmatrix}$; $b = \begin{bmatrix} b_0 \\ b_1 \\ \vdots \\ b_k \end{bmatrix}$ \rightarrow Intercept Regression