- Solution: Regression line as

$$y_i = b_0 + b_1 \cdot x_i + e_i$$

For vectors $\underline{y} = \begin{bmatrix} y_1 \\ \vdots \\ y_{10} \end{bmatrix}$ and Matrix $\underline{X}$

where $\underline{X} = \begin{bmatrix} 1 & 176 \\ \vdots & 177 \\ & \vdots \\ 1 & 184 \end{bmatrix}$ and the vector $\underline{b}$

with $\underline{b} = \begin{bmatrix} b_0 \\ b_1 \end{bmatrix}$, then applying the least-squares condition gives

$$\underline{\hat{b}} = \begin{bmatrix} \hat{b}_0 \\ \hat{b}_1 \end{bmatrix} = (\underline{X}^T \underline{X})^{-1} \underline{X}^T \underline{y}$$

- In R: Function lm()

lm(Body Weight ~ Breast Circumference, data = df)

In Real dataset:

- The number of predictors can be large
  - In ChatGPT: 10^{10}

In Kaggle datasets, there might be