

□ Data used as Input:

$$y_1 = b \cdot x_1 + e_1 \Leftrightarrow$$

$$y_2 = b \cdot x_2 + e_2 \Leftrightarrow$$

$$\vdots$$

$$y_{10} = b \cdot x_{10} + e_{10} \Leftrightarrow$$

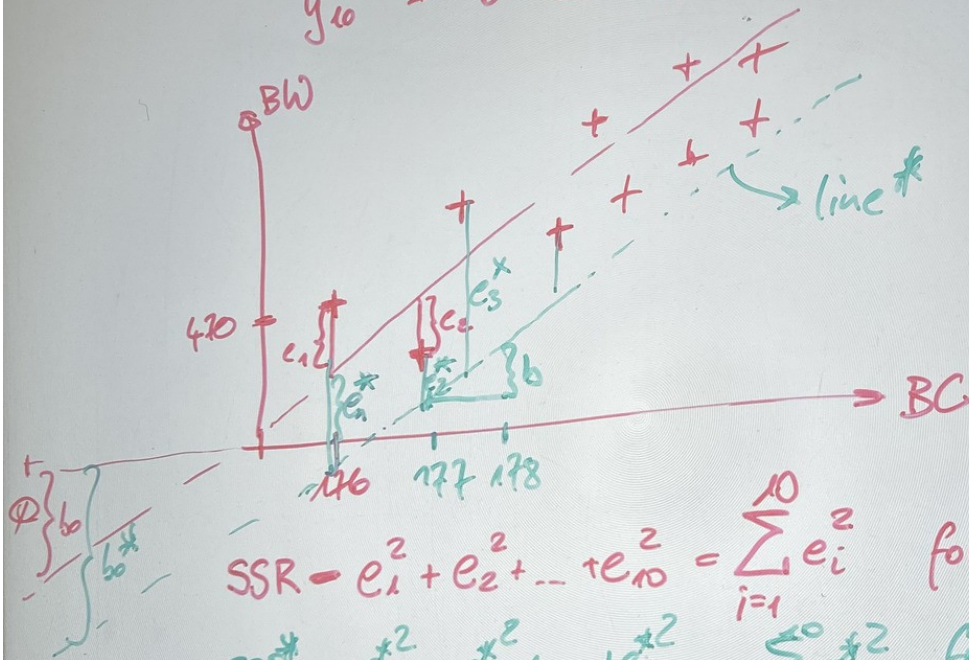
$$471 = b \cdot 176 + e_1$$

$$463 = b \cdot 177 + e_2$$

\vdots

$$541 = b \cdot 184 + e_{10}$$

of reg.
not
interesting
as single
solutions



$$SSR = e_1^2 + e_2^2 + \dots + e_{10}^2 = \sum_{i=1}^{10} e_i^2 \quad \text{for red line}$$

$$SSR^* = e_1^{*2} + e_2^{*2} + \dots + e_{10}^{*2} = \sum_{i=1}^{10} e_i^{*2} \quad \text{for green line}$$

$$SSR < SSR^*$$

- Find the regression line such that SSR is smallest among all possible lines
 \Rightarrow condition for e_i

- Solution: Regression line as

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