Definition of Least Squares Regression Line

For a set of points

$$(x_1, y_1), (x_2, y_2), \ldots, (x_n, y_n)$$

the **least squares regression line** is the linear function

$$f(x) = a_0 + a_1 x$$

that minimizes the sum of squared eror

$$\big[y_1 - f(x_1)\big]^2 + \big[y_2 - f(x_2)\big]^2 + \cdots + \big[y_n - f(x_n)\big]^2$$