

The linear regression algorithm is:

To fit data with a line:  $y = ax + b$

1. Calculate sums of N data points:

$$S_x = \sum_{i=1}^N x_i$$

$$S_y = \sum_{i=1}^N y_i$$

$$S_{xy} = \sum_{i=1}^N x_i y_i$$

$$S_{xx} = \sum_{i=1}^N x_i^2$$

2. Solve for constants:

$$a = \frac{nS_{xy} - S_x S_y}{nS_{xx} - (S_x)^2}$$

$$b = \frac{S_{xx} S_y - S_{xy} S_x}{nS_{xx} - (S_x)^2}$$

Write pseudo code for a user defined function called LinearReg that takes arrays of data points (x,y) as input and outputs the slope and y-intercept of the linear regression fit (a,b). **It must use built-in function sum and *cannot* use a for loop.**