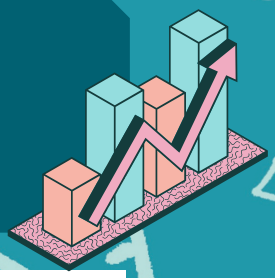
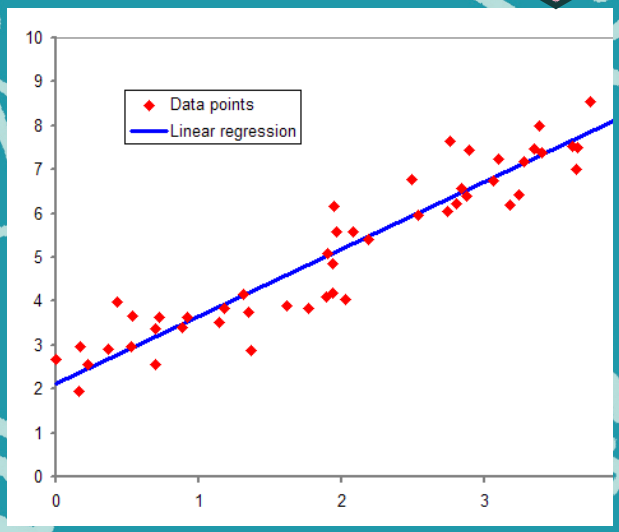
Regression

Regression in statistics refers to a statistical modeling technique used to understand the relationship between a dependent variable and one or more independent variables



The most common form of regression analysis is linear regression, where the relationship between the dependent variable and the independent variables is assumed to be linear

In this case, the best-fitting line is determined by minimizing the sum of the squared differences between the observed values of the dependent variable and the predicted values from the line.



The regression equation can be written as,

$$Y = \alpha + \beta X + \in$$

- Dependent Variable
- Population Y intercept
- Population Slope Coefficient
- Independent Variable
- Error in the equation or residual

The values are not known, since they are values at the level of population

Mathematical regression can be represented by an equation of the form:

$$y = f(x_1, x_2, ..., xn)$$

where y is the dependent variable, x_1, x_2, ..., xn are the independent variables, and f is a mathematical function that represents the relationship between them. The coefficients of the function, often denoted as β_0, β_1, β_2, ..., βn, represent the weights or slopes of the independent variables and determine how they contribute to the prediction of the dependent variable.

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