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Regression in statistics is an attempt to establish a mathematical relationship between variables. This is used to predict one variable when the other is given. For example, let us consider the relationship between the frequency of occurrence of a given size of earthquake and, the size of the event.

Given earthquake data, and assuming constancy of the system operation then one can predict how big a size of a frequency will be. A linear relationship between two variables is the Linear Regression given by the formula $y = a + bx$, where b is the slope of the regression and a is the y -intercept. In a linear regression equation, it is significant which variable is y and which variable is x . The Regression Formula which is otherwise the Regression equation is $y^{\text{TM}} = a + bx$,

Slope (b) = $[n[\sigma(xy)] - [\sigma(x)\sigma(y)]]$ divided by $[n[\sigma(x^2)] - [\sigma(x)]^2]$

Intercept(a) = $[\sigma(y) - b[\sigma(x)]]$ divided by n where n is the sample size

In the Linear Regression, $y^{\text{TM}} = bx + a$, the regression coefficient is the constant b which represents the rate of change of one variable (y) as a function of changes in the other (x); it is the slope of the regression line

One type of regression analysis is linear analysis. Some of the Regression Analysis examples are: Let us imagine that you are travelling from Chicago to Springfield driving in a car at a speed of 55mph and consider the two variables as time and distance.

If you are driving at a constant speed, then the theoretical relationship between the two variables time and distance covered is given by a straight line. But in real life it is very unlikely to keep the speed constant and then measure the distance precisely. So, in the scatter plot in the real data, the points would deviate from the theoretical straight line. And hence we need a model which shows the relationship between the two variables as linear, at the same time, takes the variation away from the line and this can be done using a Regression Analysis.

Generally, there is an increase in the height of a child as the age goes up, to a certain age. There is a possibility that there is a difference in the growth pattern of one child from another. Suppose, a study is to be done on the overall growth of young children; one method would be to bracket a certain number of children over period of time and measure their individual heights at different ages. Such data would give an insight into the overall growth pattern and also find the pattern Regression Analysis.

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