Glossary

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1. Curve/ Data Fitting
Curve fitting is the process of constructing a curve, or mathematical function that has the best fit to a series of data points, possibly subject to constraints.

2. Residual sum of squares
In statistics, the residual sum of squares is the sum of squares of residuals. It is also known as the sum of squared residuals or the sum of squared errors of prediction. It is a measure of the discrepancy between the data and an estimation model.

3. Independent Variable
This is a variable (often denoted by x) whose variation does not depend on that of another.

4. Dependent Variable
This is a variable (often denoted by y) whose value depends on that of another.

5. Ordinary Least Squares
This is the simplest and most common method of fitting a straight line to a sample of data: by minimizing the sum of the squares of the deviations of the data from the line.

6. Non-linear least squares
Non-linear least squares is the form of least squares analysis which is used to fit a set of m observations with a model that is non-linear in n unknown parameters (m > n). It is used in some forms of non-linear regression.

7. Regression analysis
In statistics, regression analysis includes many techniques for modelling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables.

8. Close-form expression
In mathematics, an expression is said to be a closed-form expression if it can be expressed analytically in terms of a finite number of certain "well-known" functions.

9. Linear equations
An equation between two variables that gives a straight line when plotted on a graph is called a Linear equation.

10. Linear regression
The relation between variables when the regression equation is linear: e.g., $y = ax + b$.

11. Co-variances
In probability theory and statistics, covariance is a measure of how much two variables change together.

12. Stochastic model
This is a mathematical model which takes into consideration the presence of some randomness in one or more of its parameters or variables.

13. Parametric model
In statistics, a parametric model or parametric family or finite-dimensional model is a family of distributions that can be described using a finite number of parameters.

14. Square matrix
This is a matrix with the same number of rows and columns.

15. Inverse matrix
In linear algebra an n-by-n (square) matrix A is called if there exists an n-by-n matrix B such that $AB=BA= I_n$ where, I_n denotes the n-by-n identity matrix and the multiplication used is ordinary matrix multiplication.