Glossary

1. Constant

Constant is something that is unchanging or invariable, or that is continually occurring.

2. Continuous Random Variable

A continuous random variable maps outcomes to values of an uncountable set (e.g., the real numbers). For a continuous random variable, the probability of any specific value is zero, whereas the probability of some infinite set of values (such as an interval of non-zero length) may be positive.

3. Covariance

Covariance is a measure of how much two random variables change together. If the greater values of one variable mainly correspond with the greater values of the other variable, and the same holds for the smaller values, i.e., the variables tend to show similar behavior, the covariance is a positive number. In the opposite case, when the greater values of one variable mainly correspond to the smaller values of the other, i.e., the variables tend to show opposite behavior, the covariance is negative.

4. Expected Value

The expected value (or population mean) of a random variable indicates its average or central value. It is a useful summary value (a number) of the variable's distribution. Stating the expected value gives a general impression of the behaviour of some random variable without giving full details of its probability distribution (if it is discrete) or its probability density function (if it is continuous). Two random variables with the same expected value can have very different distributions. The expected value of a random variable X is symbolized by E(X) or μ .

5. Location and dispersion

Statistical dispersion is variability or spread in a variable or a probability distribution. Common examples are variance, standard deviation and inter quartile range. Dispersion is contrasted with location or central tendency and together are the most used properties of distributions

6. Mean

The mean of a statistical distribution with a continuous random variable, also called the expected value, is obtained by integrating the product of the variable with its probability

as defined by the distribution. The expected value is denoted by the lower case Greek letter mu (μ).

7. Modulus

In mathematics, the absolute value (or modulus) |a| of a real number a is the numerical value of a without regard to its sign. So, for example, the absolute value of 3 is 3, and the absolute value of -3 is also 3. The absolute value of a number may be thought of as its distance from zero.

8. Phi

Phi (uppercase Φ , lowercase ϕ , or math symbol ϕ), pronounced /fat/ FY, is the 21st letter of the Greek alphabet.

9. Probability density function

Probability density function (pdf), or density of a continuous random variable, is a function that describes the relative likelihood for this random variable to take on a given value. The probability for the random variable to fall within a particular region is given by the integral of this variable's density over the region. The probability density function is nonnegative everywhere, and its integral over the entire space is equal to one.

10. Probability Distribution

In probability and statistics, a probability distribution assigns a probability to each of the possible outcomes of a random experiment.

11. Psi

Psi (/'psaɪ/ or /'saɪ/; uppercase Ψ , lowercase ψ ; after Greek ψ ĩ /'psiː/) is the 23rd letter of the Greek alphabet

12. Random Variable

A random variable or stochastic variable is a variable whose value is subject to variations due to chance. As opposed to other mathematical variables, a random variable conceptually does not have a single, fixed value (even if unknown); rather, it can take on a set of possible different values, each with an associated probability.

13. Substitution

The replacement of a term of an equation by another that is known to have the same value in order to simplify the equation. Substitution of variables (also called variable substitution or coordinate transformation) refers to the substitution of certain variables with other variables.

14. Summation

Summation is the operation of adding a sequence of numbers; the result is their sum or total.

15. Variance

Variance is a measure of how far a set of numbers is spread out. It is one of several descriptors of a probability distribution, describing how far the numbers lie from the mean (expected value).