<u>Glossary</u>

1. 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.

2. Cumulative Distribution Function

Cumulative distribution function (CDF), or just distribution function, describes the probability that a real-valued random variable X with a given probability distribution will be found at a value less than or equal to x. intuitively, it is the "area so far" function of the probability distribution. Cumulative distribution functions are also used to specify the distribution of multivariate random variables.

3. Factorial

The factorial of a non-negative integer *n*, denoted by n!, is the product of all positive integers less than or equal to *n*. For example, 5! = 5x4x3x2x1 = 120

4. Mean

Mean usually refers to the expectation of a variate, or to the arithmetic mean of a sample used as an estimate of the expectation

5. Mean Deviation

The **mean deviation** is the first measure of dispersion that we will use that actually uses each data value in its computation. It is the mean of the distances between each value and the mean. It gives us an idea of how spread out from the centre the set of values is.

6. Mean Of The Probability Distribution

For a probability distribution, the mean is equal to the sum or integral over every possible value weighted by the probability of that value.

7. Median

The median is that value of the variate which divides the total frequency into two halves.

8. Moment Generating Function

Moment-generating function of a random variable is an alternative specification of its probability distribution. Thus, it provides the basis of an alternative route to analytical results compared with working directly with probability density functions or cumulative distribution functions.

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

Probability distribution is a function that gives the probability of all elements in a given space.

11. Random Variable

In probability and statistics, a random variable or stochastic variable is a variable whose value is subject to variations due to chance (i.e. randomness, in a mathematical sense). As opposed to other mathematical variables, a random variable conceptually does not have a single, fixed value rather; it can take on a set of possible different values, each with an associated probability

12. 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.

13. Theta (O)

In statistics, θ , the lowercase Greek letter 'theta', is the usual name for a (vector of) parameter(s) of some general probability distribution.

14. Uniform Distribution

In probability theory and statistics, the continuous uniform distribution or rectangular distribution is a family of probability distributions such that for each member of the family, all intervals of the same length on the distribution's support are equally probable. The support is defined by the two parameters, *a* and *b*, which are its minimum and maximum values. The distribution is often abbreviated U(a, b).

15. Variance

The 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). In particular, the variance is one of the moments of a distribution.