Glossary

1. **Attribute**
   A characteristic of a system for which numerical measurements cannot be made and therefore cannot be treated as a variable in quantitative analysis.

2. **Chi square distribution**
   The chi-squared distribution (also chi-square or χ^2-distribution) with k degrees of freedom is the distribution of a sum of the squares of k independent standard normal random variables. It is one of the most widely used probability distributions in inferential statistics, e.g., in hypothesis testing or in construction of confidence intervals.

3. **Covariance**
   Covariance is a measure of how much two random variables change together.
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4. **Degrees of freedom**
   In statistics, the number of degrees of freedom is the number of values in the final calculation of a statistic that are free to vary. The number of independent ways by which a dynamical system can move without violating any constraint imposed on it, is called degree of freedom.

5. **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.

6. **Independent attributes**
   Two attributes A and B are said to be independent if there exists no relationship of any kind between them. If A and B are independent we would expect the same proportion A's amongst B's as amongst beta's and the proportion of B's amongst A's is same as that amongst the alphas.

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. **Normal distribution**

   In probability theory, the normal (or Gaussian) distribution is a continuous probability distribution that has a bell-shaped probability density function, known as the Gaussian function or informally as the bell curve.

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9. **Null Hypothesis**

   The null hypothesis, H_0, represents a theory that has been put forward, either because it is believed to be true or because it is to be used as a basis for argument, but has not been proved. For example, in a clinical trial of a new drug, the null hypothesis might be that the new drug is no better, on average, than the current drug.

10. **Probability distribution**

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

11. **Significance level**

    The significance level of a statistical hypothesis test is a fixed probability of wrongly rejecting the null hypothesis H_0, if it is in fact true.

12. **Statistic**

    Statistic is the result of applying a statistical algorithm to a data set. It can also be described as an observable random variable.

13. **Summation**

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

14. **Test Statistic**

    In hypothesis testing, a hypothesis test is typically specified in terms of a test statistic, which is a function of the sample. It is as a numerical summary of a set of data that reduces the data to one or a small number of values that can be used to perform a hypothesis test

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).