Statistical and non-Statistical algorithms

Statistical algorithms:

Statistical modeling is a process of using statistical techniques to analyze and make predictions or inferences about data. This can include things like linear regression, logistic regression, and time series analysis.

Few examples of statistical algorithms:

a) **Regression Analysis:** Regression algorithms, such as linear regression or logistic regression, model the relationship between a dependent variable and one or more independent variables in order to predict future outcomes.

b) **Hypothesis Testing:** Statistical tests, such as t-tests or chi-square tests, are used to determine if there is a significant difference or association between variables based on sample data.

c) **Cluster Analysis:** Cluster analysis algorithms, such as k-means clustering or hierarchical clustering, group similar data points together based on their attributes or characteristics.

d) **Time Series Analysis:** Time series algorithms, like ARIMA (Autoregressive Integrated Moving Average), analyze and forecast data points that are collected over time, helping to identify trends and patterns.

Non-Statistical algorithms:

Non-statistical methods in machine learning refer to techniques that do not rely on statistical methods. Some examples of non-statistical methods include decision trees, random forests, and neural networks. These methods are often used in situations where the data is not well-suited for traditional statistical techniques, or where the goal is to build more complex models.

Few examples of non-statistical algorithms:

a) **Sorting Algorithms:** Sorting algorithms, such as bubble sort, quicksort, or merge sort, arrange a list of elements in a specific order, such as ascending or descending.

b) **Search Algorithms:** Search algorithms, like binary search or depth-first search, locate specific elements or patterns within a dataset or a data structure efficiently.

c) **Machine Learning Algorithms:** Machine learning algorithms, including decision trees, support vector machines (SVM), or neural networks, learn patterns and make predictions or decisions based on training data.

d) **Optimization Algorithms:** Optimization algorithms, such as gradient descent or genetic algorithms, aim to find the best solution or set of parameters that optimize a given objective or minimize a cost function.