**Linear Regression**

* Is the relationship between the dependent variable(y axis) and the independent variable (x axis)
* As the independent variable changes, what happens to the dependent variable?
* If the independent variable increases along the axis, and the dependent variable increases along the axis you will see a positive correlation. As more time is spent studying(dependent variable), grades go up(independent variable).
* If the independent variable increases along the axis and the dependent variable decreases, you will see a negative correlation. As more time is spent on facebook (independent variable), grades for down (dependent variable).
* Is a form a supervised machine learning
* The algorithm is used to identify the relationship between labels, and can be used to find averages, means and predict future results also.
* It would be useful in order to forecast future periods
* An example of where this form a machine learning may be is within organisations who want to identify patterns in customer behaviour, for example comparing stock sales with the seasons of the year.

**Logistic Regression**

* Is the relationship between the dependent variable (y axis) and independent variable (x axis) to predict whether something is true or false.
* Uses a curved s line to determine whether something is true or false. For example, if weight increases along the x axis, then the y axis will have 2 answers, not obese and obese. Once the weights increases above a certain weight, the
* Is a form a supervised learning
* Would be useful to find the likelihood of something being true within a dataset.
* An example would be finding the likelihood of someone being happy at each weight. Find the correlation between happiness and weight to find the likelihood of happiness and each weight.

**Decision Tree**

* Decision Tree is a decision-making tool that uses a flowchart-like tree structure or is a model of decisions and all of their possible results, including outcomes, input costs, and utility.
* Decision-tree algorithm falls under the category of supervised learning algorithms. It works for both continuous as well as categorical output variables.
* Decision tree regression observes features of an object and trains a model in the structure of a tree to predict data in the future to produce meaningful continuous output. Continuous output means that the output/result is not discrete, i.e., it is not represented just by a discrete, known set of numbers or values.

**Support Vector Machine**

* A support vector machine (SVM) is a supervised [machine learning](https://monkeylearn.com/machine-learning/) model that uses [classification algorithms](https://monkeylearn.com/blog/machine-learning-algorithms/) for two-group classification problems.
* Support vector machines can be used in a variety of tasks, including anomaly detection, handwriting recognition, and text classification.
* SVMs use “support vectors” to find optimal solutions to classification problems. Support vectors (usually a dashed line) are placed at equal distance of the main classification line (usually a hard line). By placing the support vectors on the edge instances of each class, the SVM creates an ML model that is robust to unseen data that do not closely fit the training examples

**Naive Bayes**

* It is a supervised [classification technique](https://courses.analyticsvidhya.com/courses/introduction-to-data-science-2/?utm_source=blog&utm_medium=6stepsnaivebayesarticle) based on Bayes’ Theorem with an assumption of independence among predictors. In simple terms, a Naive Bayes classifier assumes that the presence of a particular feature in a class is unrelated to the presence of any other feature.
* It is a theorem that works on conditional probability. [Conditional probability](https://www.analyticssteps.com/blogs/conditional-probability-definition-properties-examples) is the probability that something will happen, given that something else has already occurred. The conditional probability can give us the probability of an event using its prior knowledge.

**K Nearest Neighbours**

* K-Nearest Neighbour is one of the simplest Machine Learning algorithms based on Supervised Learning technique.
* K-NN algorithm assumes the similarity between the new case/data and available cases and put the new case into the category that is most similar to the available categories.
* K-NN algorithm stores all the available data and classifies a new data point based on the similarity. This means when new data appears then it can be easily classified into a well suite category by using K- NN algorithm.
* K-NN algorithm can be used for Regression as well as for Classification but mostly it is used for the Classification problems.

**K Means Clustering**

* K-means clustering is an unsupervised algorithm that tries to group similar kinds of items in form of clusters. It finds the similarity between the items and groups them into the clusters. K-means clustering algorithm works in three steps.
* Select the k values, Initialize the centroids, Select the group and find the average

**Random Forest**

* Random forest, like its name implies, consists of a large number of individual decision trees that operate as an [ensemble](https://en.wikipedia.org/wiki/Ensemble_learning). Each individual tree in the random forest spits out a class prediction and the class with the most votes becomes our model’s prediction
* It utilizes ensemble learning, which is a technique that combines many classifiers to provide solutions to complex problems.
* t predicts by taking the average or mean of the output from various trees. Increasing the number of trees increases the precision of the outcome.