# Machine Learning

Machine learning is a field of computer science that gives computers the ability to learn without being explicitly programmed.

machine learning explores the study and construction of algorithms that can learn from data and can make predictions on data. Example applications include email filtering, detection of network intruders or malicious insiders working towards a data breach, optical character recognition (OCR), and computer vision.

Machine learning tasks are typically classified into two broad categories, depending on whether there is a learning "signal" or "feedback" available to a learning system:

# Supervised learning:

The computer is presented with example inputs and their desired outputs, given by a "teacher", and the goal is to learn a general rule that maps inputs to outputs. As special cases, the input signal can be only partially available, or restricted to special feedback:

# [Unsupervised learning](https://en.wikipedia.org/wiki/Unsupervised_learning):

No labels are given to the learning algorithm, leaving it on its own to find structure in its input. Unsupervised learning can be a goal in itself (discovering hidden patterns in data) or a means towards an end (feature learning).

# Classification

## Decision Tree

* Presentation
* ID3 : A top Down Learning Algorithm
* Expresiveness of DT
* Bias of ID3
* Best Attributes ( Gain(S,A)
* Dealing with Overfitting

Q.1 Continuous Attributes ( Age, Distance, Weight)

Q.2 When do we stop ? Pruning

Q.3 Regression