Prior Knowledge :

- **Supervised and Unsupervised learning:**
  - Supervised learning, as the name indicates, has the presence of a supervisor as a teacher. Basically supervised learning is when we teach or train the machine using data that is well labelled. Which means some data is already tagged with the correct answer. After that, the machine is provided with a new set of data. so that the supervised learning algorithm analyses the training data and produces a correct outcome from labelled data.
  - Unsupervised learning is the training of a machine using information that is neither classified nor labeled and allowing the algorithm to act on that information without guidance. Here the task of the machine is to group unsorted information according to similarities, patterns, and differences without any prior training of data.
- **Regression Classification and Clustering:**
  - Clustering is an unsupervised technique. With clustering, the algorithm tries to find a pattern in data sets without labels associated with it. This could be a clustering of buying behaviour of customers. Features for this would be the household income, age, … and clusters of different consumers could then be built.
  - Classification algorithms look at existing data and predicts what a new data belongs to. Classification is used for spam for years now and these algorithms are more or less mature in classifying something as spam or not. With machine data, it could be used to predict a material quality by several known parameters (e.g. humidity, strength, color, …).
- **Artificial Neural Networks :**
  - To understand the concept of the architecture of an artificial neural network, we have to understand what a neural network consists of. In order to define a neural network that consists of a large number of artificial neurons, which are termed units arranged in a sequence of layers. Lets us look at various types of layers available in an artificial neural network.

    > Input Layer

    > Hidden Layer

    > Output layer

- **Convolution Neural Networks :**
  - A convolutional neural network, or CNN, is a deep learning neural networksketchedfor processing structured arrays of data such as portrayals.
  - CNN are very satisfactory at picking up on design in the input image, such aslines,gradients, circles, or even eyes and faces.
  - CNN can run directly on a underdone image and do not need anypreprocessing.
- **Flask:**
  - To put it to use in order to predict the new data, we have to deploy it over the internet so that the outside world can use it. In this article, we will talk about how we have trained a machine learning model and created a web applicationon it using Flask.