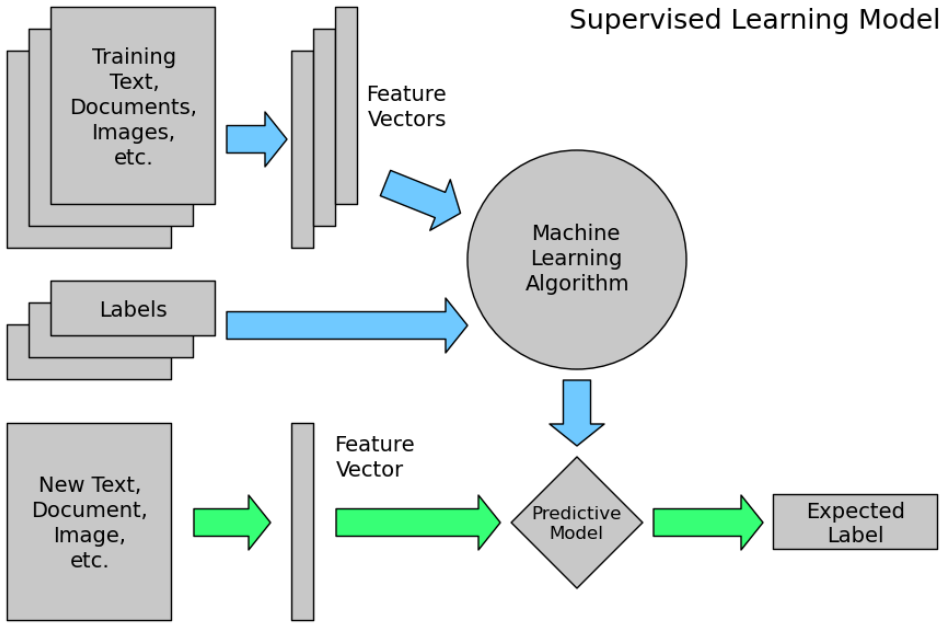
Supervised Machine Learning

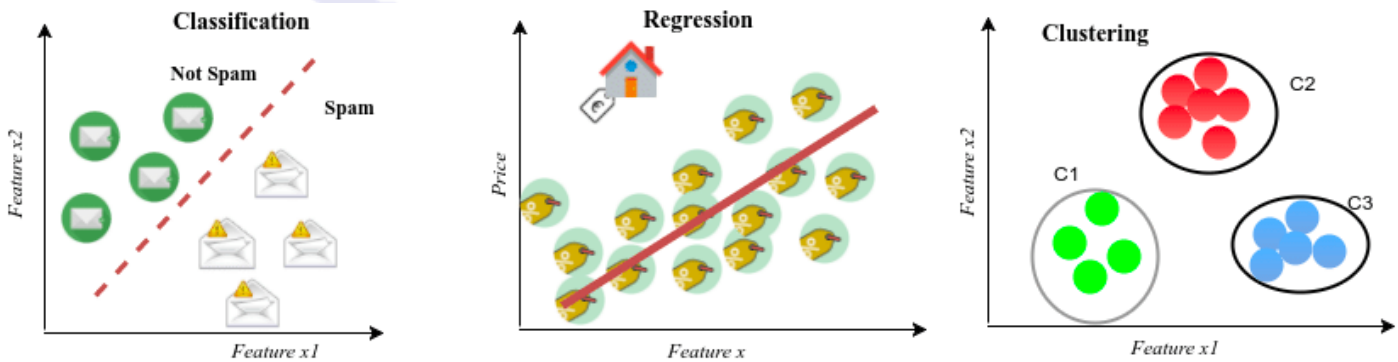
Supervised machine learning algorithms can apply what has been learned in the past to new data using labeled examples to predict future events.



Starting from the analysis of a known training dataset, the learning algorithm produces an inferred function to make predictions about the output values.

The system is able to provide targets for any new input after sufficient training.
The learning algorithm can also compare its output with the correct, intended output and find errors in order to modify the model accordingly.

There are three approaches for supervised learning as



Classification:
It predicts discrete number of values.
In classification the data is categorized under different labels according to some parameters and then the labels are predicted for the data.
Classifying emails as either spam or not spam is example of classification problem.

Regression:
It predicts continuous valued output.
The Regression analysis is the statistical model which is used to predict the numeric data instead of labels.
It can also identify the distribution trends based on the available data or historic data.
Predicting a person's income from their age, education is example of regression task.
Or predicting the price of home depends on the features provided by the home.

Clustering:
Clustering is the task of partitioning the dataset into groups, called clusters.
The goal is to split up the data in such a way that points within single cluster are very similar and points in different clusters are different.
It determines grouping among unlabeled data.