Assignment :-

Machine Learning.

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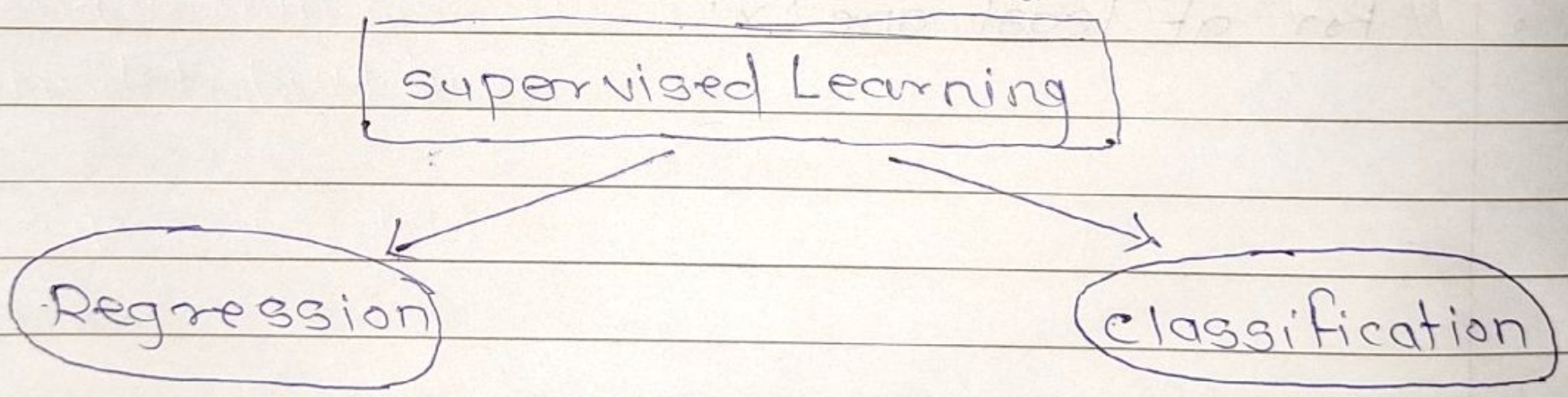
YOUVA

1) Machine Learning Algorithms.

① Supervised Learning :-

The machine need external supervision to learn. The supervised learning model are trained using the labeled dataset. once the training and processing are done, the model is tested by providing a sample test data to check whether it predicts the correct output

The goal supervised learning is to map input data. supervised is based on supervision and it is the same as when a student learns things in the teacher's supervision. The example of supervised learning is spam filtering.



Regression algo. are used if there is a relationship betn the input variable and the output variable.

- Linear Regression
- Regression Trees.
- Non-lenear Reg.
- Bayesian Linear Reg.
- Polynominal Reg.

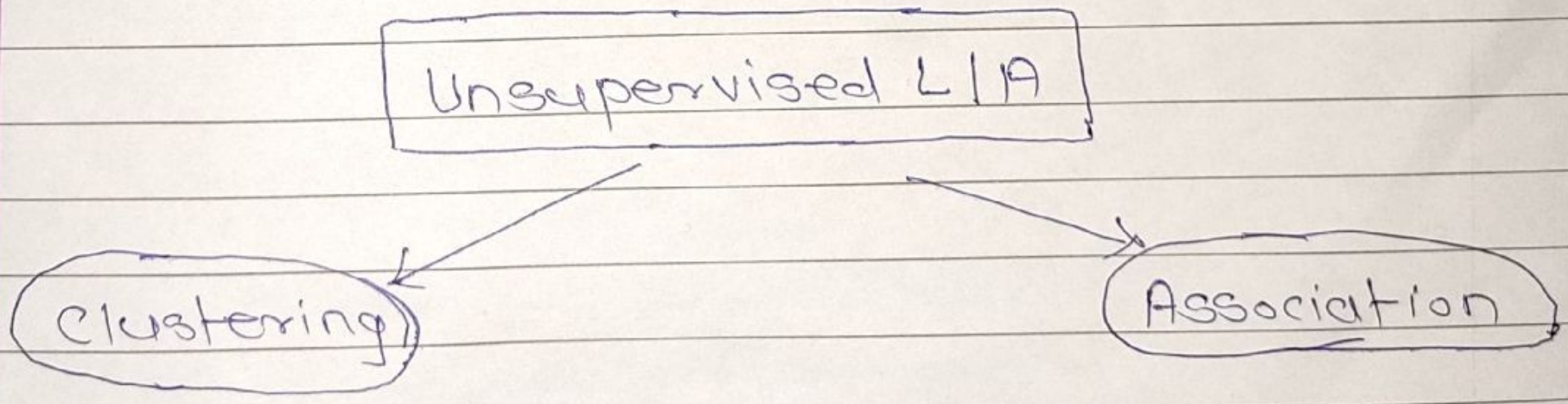
classification algo. are used when the output variable is categorial, which means there are two class such as Yes-No, Male-female, True-false etc.

spam filtering

- Random Trees
- Decision Trees
- Logical Reg.
- Support vector machine.

② Unsupervised L|A.

The machine does not need any external supervision to learn from the data, hence called unsupervised learning. The unsupervised models can be trained using the unlabelled dataset that is not classified, not categorized, and the algorithm need to act on that data without any supervision. In supervised learning the model dosent have predefine output and it tries to find useful insight from the huge amount of data. The are used to solve Associate and clustering problem.



③ Reinforcement learning :-

In R/L, an agent interact with it's environment by producing actions., and learn with the help of feedback. The feedback is

given to the agent in the form of reward. Such as for each good action, he gets a positive reward and for each bad action. he gets a negative reward. There is no supervision provide to the agent. Q-Learning algorithm is used in reinforcement learning.

④ Semi-Supervised L.

Semi-supervised learning falls in beth this two. In many practicle situation the cost to lable is quite high, since it requires skilled human expert to do that. So, in the absence of labels in the majority of the observations but present in few. Semi-supervised algorithm are the best candidates for the model building.

2) ~~Supervised Learning~~ :-

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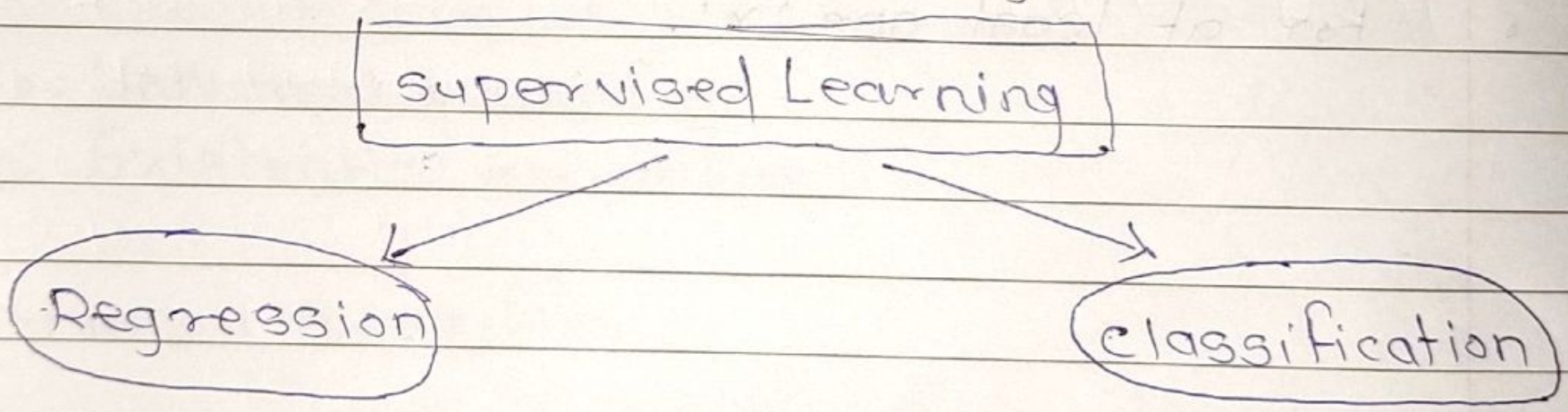

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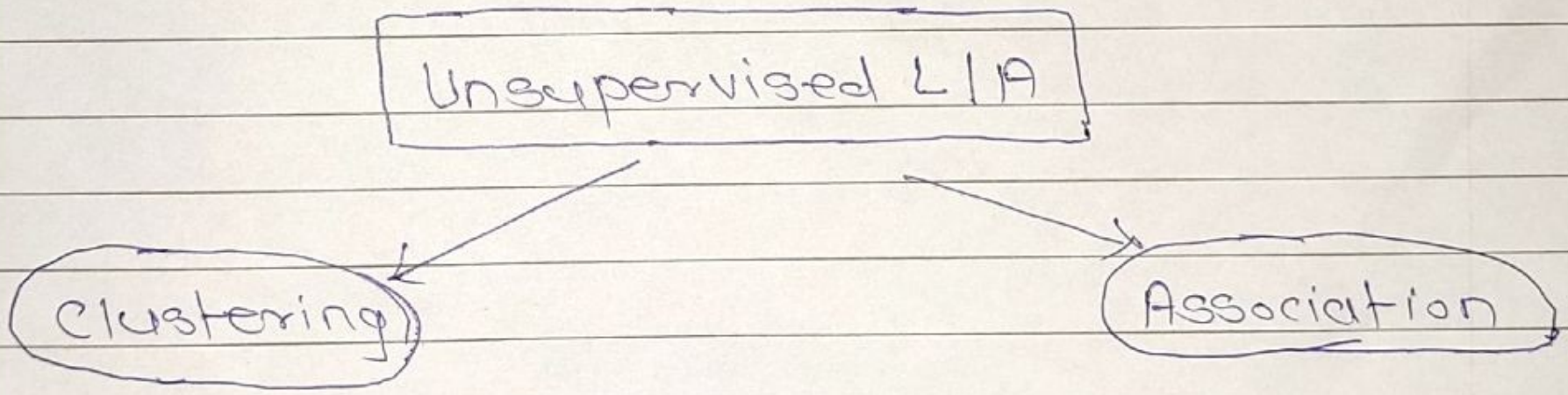

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4) Support Vectors in (SVM.) Machine Learning.

Support vector machine (SVM) is a supervised machine learning algorithm use for both classification and regression. Though we say regression problem as well its best suited for classification. The objective SVM algorithm to find hyperplane in an N-dimensional space that distinctly classifies the data points. The dimention of the hyperplane depends upon the number of features If the number of input feature is two, then the hyperplane is just a line. If the number of input features is three, then the hyperplane becomes a 2-D plane. It becomes difficult to imagine when the number of features exceeds three.

Advantages of SVM :-

- Effective in high dimensional cases.
- Its memory efficient as it uses a subset of training points in the decision function called support vectors.
- Different kernel functions can be specified for the decision functions and its possible to specifies custom kernels.